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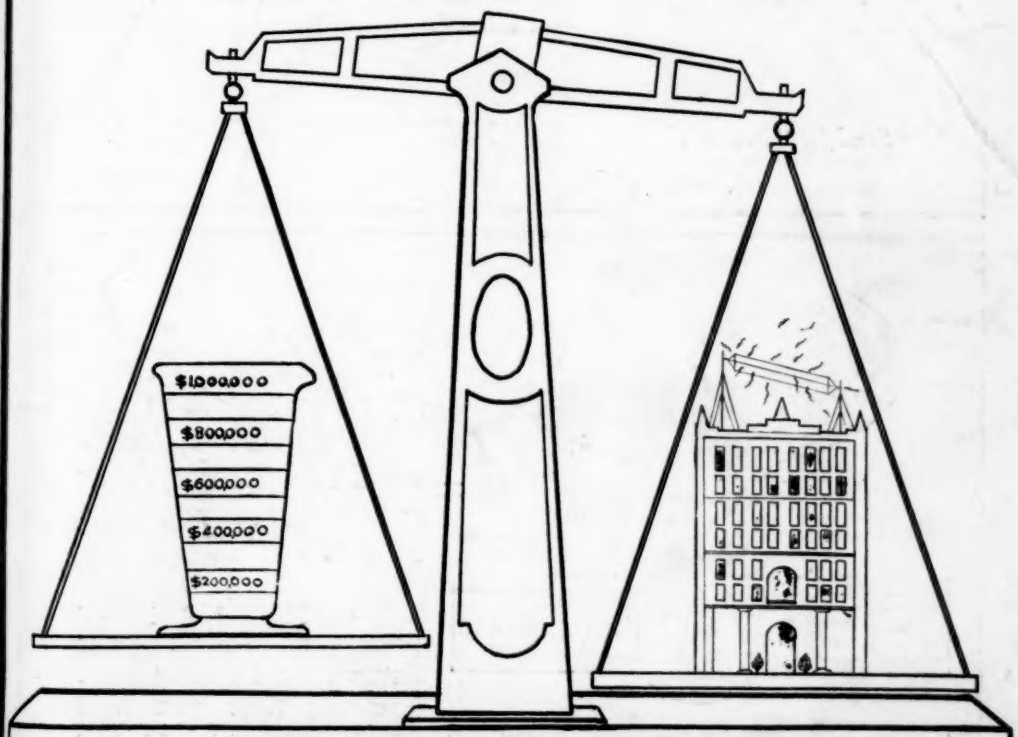

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JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XIII APRIL, 1924 No. 4

THE AMERICAN PHARMACEUTICAL ASSOCIATION HEADQUARTERS BUILDING.

BY AMBROSE HUNSBERGER.

It would be a hopeless task, indeed, to attempt offhand to enumerate the many advantages which, through the acquisition of a Headquarters Building, must accrue to an organization such as the American Pharmaceutical Association—national in its scope of activity and international in its reputation for constructive achievement in its chosen field of human endeavor.

If there were no other advantages to be gained such as providing a permanent storehouse for its valuable archives, or the housing of its executive and central administrative forces, or the establishing of a central point from which the activities which come within its scope might be efficiently directed and properly controlled there would still remain one big outstanding reason for putting forth our best effort to acquire an A. Ph. A. Headquarters Building and that reason lies in the single word—**prestige.**

There is perhaps no other factor that does as much to establish "prestige" in the human mind as the possession of a home—a domicile whose tangible existence is unconsciously but invariably associated with the personality or the activities of the owner, be it an individual or an organization of individuals—professional, social, civic, business or what not.

What patriotic American ever stops long enough in his impetuous career to give a moment's thought to the wonderful country which gave him birth whose thoughts do not involuntarily drift to the Nation's Capitol and bring to his consciousness a vivid mental picture of the Nation's beautiful "headquarters building?"

Where is the man whose brain does not register a mental picture of the handsome "headquarters building" of the U. S. Chamber of Commerce whenever the activities of that body challenge his attention?

Who will say that the prestige of the American Medical Association was not increased, not only among its members, but with the general public, by the ac-

quisition of its substantial "headquarters building" in that wonderful city on the shore of Lake Michigan?

And then come right home with me to Philadelphia where we have before us the first experiment in "headquarters building" ownership by a strictly pharmaceutical organization—the "headquarters building" of the Philadelphia Association of Retail Druggists. This experiment is at the end of its first year and the success of the venture is demonstrated by the fact that twenty-five per cent. of the total indebtedness on the building was paid off during this period. The building houses the business office of the P. A. R. D., has commodious rooms devoted to committee or general meetings, serves as a rendezvous for conferences, and has increased immeasurably the interest of the members in their organization because of the prestige achieved through the acquisition of a home—a "headquarters building."

"What good is prestige?" Prestige means standing—it means increased influence in the community—it favorably impresses other citizens, officials, lawmakers, law administrators—local, state and national—educators, physicians, press and pulpit. Prestige is as essential to the success of individuals or aggregations of individuals as is gunpowder to an army.

With increased prestige the American Pharmaceutical Association may assume with confidence still greater tasks in behalf of American Pharmacy than those so well performed in the past. Its prestige will be increased by its possession of a Headquarters Building.

"How is the building to be secured?" By overcoming "It can't be done," dissipating "What's the use," scattering "It's too big a job," selling it to "It'll cost too much," converting "It's nothing to me" and ultimately putting it over in spite of these or any other obstacles.

"Who's going to do the big job?" You, I and all of the rest of us who are interested in perpetuating the splendid traditions of American Pharmacy. Come ahead, eyes front, let's go!

ANNOUNCEMENT OF THE CHAIRMAN OF PHARMACY HEADQUARTERS CAMPAIGN COMMITTEE.

To the Druggists of the United States:

Immediately subsequent to the last meeting of the American Pharmaceutical Association at Asheville, September 1st, I published a statement of my ideas as to what should be done to obtain the necessary funds for the establishment and endowment of a headquarters building for the American Pharmaceutical Association to serve all pharmacists. On December the seventh of last year, a short three months later, the Board of Directors of the A. Ph. A. gave me the privilege of organizing a committee of five to show what could be done with my plan. I now wish to tell you what has been done, so that every druggist in the United States will be stimulated to support this great cause financially as well as morally.

Within a week after my appointment, our Committee was organized and went into action. In addition to our general committee of five, we appointed an Advisory Committee of three hundred and fifty, a Publicity Director, a Director of Propaganda, a Business Manager and a Treasurer.

Our main Committee has kept a staff of clerical assistants busy and has appointed, educated, instructed and obtained the whole-hearted support and active coöperation of fifty able, energetic and efficient State Chairmen. We have written upwards of ten thousand individual letters and have sent out from three to five hundred night letters and telegrams. We have written individual letters to every

drug manufacturer, wholesale druggist, proprietary druggist, and affiliated business in the United States, and have corresponded with several hundred of them.

We have obtained seventeen subscriptions, ten of which are of $1000.00 or more, two of $2500.00 or more, two of $5000.00, and three of $10,000.00, and we have obtained definite promises of five subscriptions which will exceed $10,000.00.*

Our work is still progressing and we are just reaching the peak of our effort. Our Publicity Director has developed a publicity campaign which could scarcely be surpassed, even though he might have thousands of dollars and a large corps of assistants at his disposal instead of a few hundred dollars and several assistants. He has written individual letters which must run into thousands. He has corresponded with three hundred and fifty Advisory Committee men and obtained many valuable statements supporting this splendid campaign. He has corresponded with and secured the fullest coöperation and interest of some fifty drug journals which are giving whole-hearted disinterested service worth many thousands of dollars. He has circularized and corresponded with all manufacturers, wholesalers, officers of state associations, pharmaceutical faculties, boards of pharmacy, etc., and has stimulated their interest and obtained their coöperation. He has arranged for radio talks and special publications and for the insertion of letter inslips in the letters of many drug firms having an extensive mailing list.

Our Director of Propaganda has prepared a carefully worded impressive letter, completely informative and instructive, which will be sent to every druggist in the United States—more than fifty thousand of them—on April the first. Each letter will contain a pledge card with instructions how to use it.

Our State Chairmen have organized, along a general plan, a main committee of seven subchairmen for every large city or county, with sufficient captains of the teams and solicitors so that each solicitor will not be obliged to call upon more than ten prospects.

Our Business Director, a certified expert accountant, is equipped with filing cards and cabinets ready to take care of the subscriptions.

Our Treasurer is prepared to take the money.

We have done our part to the best of our ability. We have given time, money and interest, and we hope and expect that every druggist in the United States who has the progress, elevation and protection of pharmacy and himself at heart will subscribe generously.

We require a million dollars to properly endow this great enterprise and we plan to get it.

H. A. B. DUNNING, Chairman Headquarters Building
Campaign Committee, Baltimore, Md.

RESULT OF ELECTION OF AMERICAN PHARMACEUTICAL ASSOCIATION ANNOUNCED.

The Board of Canvassers of the American Pharmaceutical Association—Ivor Griffith, Chairman, Adley B. Nichols and Ralph R. Foran—have announced the following results of the vote cast by the members of the Association electing Charles W. Holton of Newark, N. J., President and as members of the Board of Directors—H. V. Arny of New York City, H. M. Whelpley of St. Louis, and A. G. DuMez of Washington, D. C. The latter will fill the vacancies created by expiration of the terms of office of three members, namely, John G. Godding, George M. Beringer and H. M. Whelpley. The Chairmen of the Sections are the Vice-Presidents of the Association under the revised Constitution and By-Laws. The President and members of the Board of Directors elected will be installed at the close of the Buffalo meeting of the American Pharmaceutical Association. A sketch of President-Elect Charles W. Holton will be printed in the May number of the JOURNAL.

* A partial list of advanced subscriptions is printed elsewhere in this issue.

EDITORIAL

E. G. EBERLE, EDITOR 253 Bourse Bldg., PHILADELPHIA

THE AMERICAN PHARMACEUTICAL ASSOCIATION HEADQUARTERS BUILDING.

THE following excerpts from expressions of loyalty and interest are presented here as an efficient means for enlisting the coöperation of all the pharmaceutical interests. The undertaking to provide a permanent home, or headquarters, for the American Pharmaceutical Association has assumed definite form and liberal contributions have been made before the campaign for funds has really begun. The plan is broad in scope and purposes and with your active assistance and contributions success is assured.

The purpose is to bring the campaign to a successful conclusion promptly and celebrate the greatest event in American Pharmacy at a jubilee meeting in Buffalo during the last week of the coming August. You have helped "put over" campaigns in your community; the plans have been prepared for you and never before have you had the opportunity of sharing in the benefits of success so largely. "Let us pull long, strong and all together." Now!

E. G. E.

COMMENTS OF RETAIL PHARMACISTS.*

Glad to act as a member of the Advisory Committee in the Pharmacy Headquarters Building Campaign.—William C. Anderson, active in local, state and national organizations; past president N. A. R. D.; retail pharmacist; dean of Brooklyn College of Pharmacy.

Hopes to be of some real help in so worthy a campaign.—Charles H. Avery, retail pharmacist of Chicago, past president N. A. R. D.

Endorses project.—"Will be a monument to American Pharmacy, and of great financial value to every druggist."—**Ernest Berger,** retail pharmacist of Tampa, active in association work.

A great opportunity for united action.—"The American Pharmaceutical Association, ever since its organization, more than seventy years ago, has been the outstanding leader of professional pharmacy in the United States. What this association has accomplished for the benefit of pharmacy, during its long life, with reference to pharmaceutical research work, in the advancement of the science and art of pharmacy and in solving many important pharmaceutical problems, has been clearly set forth by Prof. J. H. Beal in his recent letter[1] to American pharmacists.

"So, for the above-named reasons, the proposed erection of a permanent home for our parent pharmaceutical association, in the form of a suitable headquarters building, centrally located, cannot but help to further strengthen that very backbone of American pharmacy— the A. Ph. A. It is to be sincerely hoped that every pharmacist in the United States will go deep in his pocket and give quickly and liberally, so that this building may be an accomplished fact within a short time, and stand out as a beacon light for American pharmacy and serve as a fine example of true coöperation on the part of American pharmacists."—

* Liberty has been taken in condensing the matter by leaving out portions which have been in a way duplicated by several contributors, other articles have been printed elsewhere and in previous issues of the JOURNAL. For historical record all contributions will be filed in complete form. More than likely errors will be found, which it is to be hoped can be corrected.

[1] See pp. 5, 97, 174, January and February JOURNAL A. PH. A.

Otto J. S. Boberg, retail pharmacist of Eau Claire, Wis., member Board of Pharmacy, active in association work.

A wonderful plan.—"Will be glad to render my aid in behalf of Virginia's interest in this work."—**S. C. Brooks,** president Virginia Pharmaceutical Association.

Urges unstinted support.—"I am gratified to have the opportunity to serve on the Advisory Committee, and take great pleasure in commending this movement to my friends among the druggists and allied interests. Through the activities of the American Pharmaceutical Association, which organization fosters our state associations, we have been able to advance pharmacy and secure such protection as we now enjoy."—**F. W. Brown,** retail pharmacist of Lead, S. D.

Individual and association subscriptions urged.—"The student bodies at the various schools of pharmacy should be only too glad to assist in the Pharmacy Headquarters Building campaign—as they will be the druggists of tomorrow—greatly improving the pathway for the coming men of the profession, who will be glad the present day pharmacists had the forethought, money and inclination to provide a permanent Headquarters for all the drug trade interests.

"Every man engaged in the practice of pharmacy or any of the drug interests of our country should become vitally interested and see the need of a Pharmacy Headquarters Building. Each should be willing to put shoulder to the wheel, for, 'In Union There Is Strength.' Each state association should subscribe as much as its funds will permit, and each individual pharmacist should invest all that circumstances will permit."—**J. S. Chism,** retail pharmacist of Wichita, Kansas.

Will do all that he can to promote a successful outcome.—E. H. Breckon, president New York State Pharmaceutical Association.

An opportunity to inform the laity relative to pharmaceutical service.—"It is particularly opportune as well as necessary to advance the proposition for a permanent headquarters for the A. Ph. A. and American Pharmacy.***

"At no time in the history of pharmacy have its professional relations been subjected to more severe strain in the public mind than at present.

"Persuaded, undoubtedly, by a greed for ulterior gain, many men and also women have taken up pharmacy as a vocation, who have practically no conception of the ideals and aspirations of real pharmaceutical service to the public.

"As a result of this, the public is inclined to charge the venalities of a minority to the whole profession with a corresponding loss of prestige to an honorable calling.

"Every pharmacist with a natural interest in the welfare of his chosen vocation and zealous in guarding its fair name from aspersion, can realize that in this plan there is an opportunity to publicly and permanently emphasize to the lay mind the real purposes and aims of an important service in every community.

"The building proposed and its purpose cannot fail to carry its real message into the intellects of those who are thoughtful and cognizant of what occurs in the day's work, and we all should add our share to the financial needs of the project.

"The personnel of the committee which the A. Ph. A. has charged with the duty of making the plans a practical working reality is so constituted that all pharmacists must feel sure that nothing short of what has been proposed will satisfy them as a finished task.

"Let every real pharmacist help!"—**Wm. L. Cliffe,** retail pharmacist of Philadelphia, past president Pennsylvania Pharmaceutical Association.

A real chance to practice what we preach.—"While other professions have been advancing along the line of coöperation as set forth and shown in their local, state and national associations to their own benefit and welfare, it is an admitted fact that American pharmacists have been more or less asleep.

"By consolidation of the efforts of ourselves as individual druggists and with our local and state associations to back them, the American Pharmaceutical As-

sociation will become powerful, and will command respect from all other professions, and give service. The proposed new headquarters building will become the hub for American pharmacy around which the spokes of endeavor of our local and state organizations will rotate to the mutual benefit of ourselves, and for the world at large.

"I do not know of any other movement that could be undertaken at this time, and completed, as it surely will be—that will have such far-reaching results and benefits as this proposed by the American Pharmaceutical Association."—**Ray J. Cook,** secretary Wyoming Board of Pharmacy.

A grand undertaking.—"I am heartily in favor of the project of a permanent home for our associations. Believe it's a grand undertaking, very desirable and can be achieved. Will gladly support the plan to the best of my ability."—**J. F. Danek,** Minneapolis, Minn.

Kansas to have a seat on the front row of the new Convention Hall.—"The American Pharmaceutical Association, while of mature years, is yet in its infancy as compared with what it should be and will be, if we do our duty. That duty is to get busy and push. To feel that this is our personal business and that as a partner in the enterprise we must do our part and, if necessary, put in a little overtime. We have other organizations, national and local, which, from the standpoint of dollars and cents, are taking care of us, but when we get entirely away from ethical and professional pharmacy we are lost. We must quit thinking of turnover and learn more of what we turn over and why. We must strike the happy medium between ethics and commercialism and in the American Pharmaceutical Association we have the means of accomplishing this end. We feel that Kansas will do her part. She has that habit from having had to pioneer most of the problems of reform. Kansas does many foolish things, but she always does them thoroughly and finishes what she starts. We trust Kansas may have a seat on the front row of the new Convention Hall."—**D. F. Deem,** member Kansas Board of Pharmacy.

An honor to serve on Advisory Committee.—**R. A. Doyle,** member Missouri Board of Pharmacy.

Loyalty to pharmacy.—"Summing up all, this coming structure will become the very foundation of pharmacy ethics and science. Every constituent, in every country, is given a chance in time of need to prove his patriotism. To every American pharmacist is given the opportunity to show his loyalty to his profession.

"Chairmen have been selected from various states and solicitors will call on every druggist in the United States. Your moral and financial support is solicited. One-half million dollars must be raised. CONTRIBUTE. Feel the satisfaction of helping to build a permanent home for an organization, which, with your coöperation, will increase the prestige of every pharmaceutical association in the country, making them more powerful and of better standing in the community. This is an opportunity for every member in the drug trade.

"To increase the membership, a provision has been made that contributions of $25 or more from new members will entitle the contributor to one year's membership in the Association. This is a very liberal provision and an opportunity to any pharmacist to become a member. Also gifts of $100 or more may be divided into ten semi-annual payments covering a period of five years. Members contributing $1000 or over will be entitled to a life membership."—**Samuel S. Dworkin,** chairman Committee on Commercial Interests of N. Y. State Pharmaceutical Association.

Federation of the interests of pharmacy.—"The average retail druggist is particularly slow in taking advantage of opportunities of paving the way for future benefits; he seems to be indifferent, or to take for granted that the future has nothing worth while to offer. He would profit materially by following the ex-

ample of the jobber and manufacturer, who devise means and ways for improvements or business advantages that may accrue in the future.

"In asking the retailer to support the Pharmacy Headquarters project, I would invite him to demand the following in the near future:

"1. Limiting drug store ownership to druggists.

"2. A system of apprenticeship by statutory enactment.

"3. A uniform standard for U. S. P. and N. F. preparations by the repeal of all provisions permitting the sale of substandard manufactured official medicines.

"These things may only come through a concentration and coöperative association of all drug interests. The Headquarters Building movement offers real hope for an effective federation of the drug interests of the country."—**Louis Emanuel,** Pittsburgh pharmacist; for many years member Pennsylvania Board of Pharmacy.

American Pharmaceutical Association, a disseminator of pharmaceutical knowledge.—"As an officer of the New York State Pharmaceutical Association, I can safely say that our officers are very much in favor of the Headquarters Building movement and that our very best efforts will be expended in making this drive the success it deserves to be.

"In looking at this proposition I am positive it will be a success from the start and I am confident that one of the most important results to be obtained will be the awakening of pharmacists in general to the work that has been done and is being done to-day by the officers and members of the American Pharmaceutical Association in bringing pharmacy to the front as a profession, and also will be an incentive to the pharmacists of the nation to improve the pharmaceutical and scientific side of their business which has been sadly neglected more or less during the past few years for the commercialism forced upon us by competition from the cut-rate, the drugless drug stores and department stores.

"Now is the time to emphasize the importance of the American Pharmaceutical Association as a disseminator of pharmaceutical knowledge and information for the benefit of its members, and by contributing to this fund pharmacists will be in a position to reap dollars in value received for dimes invested in this building fund.

"As a member of the General Committee for New York state I want to pledge my best efforts to assist in this wonderful undertaking."—**T. Bruce Furnival,** retail pharmacist, Syracuse; vice-president N. Y. State Pharmaceutical Association.

Will lend his best efforts for the success of A. Ph. A. Headquarters.—**George K. Grantham,** retail pharmacist, Dunn, N. C.

No pharmacist can be too enthusiastic relative to proposed headquarters.—"No pharmacist can be too enthusiastic about the proposed Headquarters Building for American Pharmacy. It has been often stated without successful contradiction that each and every person in the United States having any interest in pharmacy owes something to the good old A. Ph. A. The work it has accomplished and is continuing to accomplish for the profession cannot be too highly estimated. Where would pharmacy stand to-day, in this country, if it had not received the benefits of this Association?

"I appeal to all pharmacists and those in business in any way allied to pharmacy to open their hearts, their minds, and their purses as well, to give freely to the utmost of their ability, to so good, just and worthy—*yes, necessary*—a cause as the proposed Headquarters Building for American Pharmacy.

"This building is of vital necessity if we are not to stagnate. We must progress. Therefore, speaking frankly, fellow pharmacists, how can we afford to pass up this opportunity of helping the cause? Come Across Now!—**Wm. Gray,** pharmacist, Presbyterian Hospital, Chicago.

Will do all in his power to help the good work.—Benjamin Green, retail pharmacist of Portsmouth, N. H.

A most notable event. Courage and character assure a headquarters building.—"The most notable event in American pharmacy the past decade is the movement now being undertaken and put into operation by Dr. H. A. B. Dunning, for the purpose of raising the necessary funds to provide for the erecting and endowment of a headquarters building for the American Pharmaceutical Association. He and his associates are bound to meet with success for the reason that they have gone into it with heart and soul and are determined to put it over.

"With a museum of historical interest showing the advances made the past century, a pharmaceutical library it can and will possess, and laboratories for research work on pharmaceutical problems already promised, office facilities for its many endeavors and sufficient room for *all* national drug organizations to maintain offices or headquarters, a condition will be brought about whereby pharmacy will come into its own and receive recognition never before obtained.

"The Chamber of Commerce of the U. S. A. has recognized the necessity of a permanent home; the American Academy of Sciences has likewise so recognized this fact and is erecting a building; many other national organizations are following. Is there any fair or just reason why the A. Ph. A. should not progress and have its home? Every calling recognizes that to-day closer coöperation than heretofore is necessary. American pharmacy must awaken, it must recognize that we must work as a body instead of as individuals, we must coöperate with every branch of the drug trade to elevate pharmacy and place the calling where it properly belongs.

"If it has taken courage, if it has taken a clinging to high principles, if it has taken character for this country to grow from its earliest beginnings to this great nation, whose influence is felt and recognized in every quarter of the globe, then it has taken this same courage and character in the individuals who have taken part in the progress of the A. Ph. A. in the past and more so the present day, and they will support the movement and enlist the interests of all that have any connection with pharmacy to make the permanent home an assured fact.

"Let's do our bit, each and every one, make the movement a success so that we can erect a monument to pharmacy that future generations will be proud of.—**Samuel L. Hilton,** retail pharmacist of Washington, D. C., treasurer Board of Trustees, U. S. P., past president A. Ph. A., and N. A. R. D.

Likes the idea—pharmacy needs coöperation and federation, a national shrine for pharmacy needed.—"I like the idea of a permanent headquarters for the American Pharmaceutical Association because I believe pharmacy is in need of coöperation and federation and such a tangible evidence of the existence of a national shrine for pharmacy where all interests may congregate will help along this ideal.

"I like the idea of the national headquarters where permanent offices will be because pharmacy needs to be ever on the alert for inimical legislation at Washington, and we know there has been enough of this in the past.

"I like the idea of a national headquarters because here in one place may be housed all the past history of pharmacy, in a place befitting its importance and where there may be located laboratories and libraries for the advancement of the calling. Such a laboratory has already been given. May we not expect other proposals of a similar nature to follow if suitable quarters are provided?

"I like the idea of a headquarters building because here in a common cause, all interests of pharmacy may unite to help establish our calling on such a plane as is befitting its importance—a fine chance for team work to do a big thing for pharmacy in a big way. If each man, no matter what his place or position is, will do his part, the job will be done to the everlasting credit of pharmacy"—**Charles W. Holton,** retail pharmacist of Newark, N. J.

Arizona says—Yes!—"The retail druggists of Arizona are progressive and good business men and after they are shown and convinced that any movement is good they are good joiners and boosters. The future of the retail pharmacist of Arizona is very bright and any great movement such as the American Pharmaceutical Association is now offering them will not fail to interest them and I predict that a greater percentage of subscribers will be shown in Arizona when the campaign for the Headquarters Building is finished than in any sister state.

"Personally, I think it is one of the greatest ideas ever thought of. Having a Headquarters Building for the American Pharmaceutical Association is the outcome of years and years of good constructive thinking by the members of the Association. It is the right thing to do.

"So let's build—to build is one of the greatest things a race can do—keep on building and never stop. The building of structures reflects the progress of civilization at different periods, so now let's build something for the *Advancement* of Pharmacy that the *World* may look up to. Every wish and help that the writer can render is hereby offered."—**Arthur G. Hulett,** secretary Arizona Board of Pharmacy and Arizona Pharmaceutical Association.

An appeal to retail pharmacists.—"Washington once said, 'Promote as an object of primary importance institutions for the general diffusion of knowledge' and on another occasion 'Nothing can better deserve your patronage than the promotion of science and literature.' These were not idle words spoken by this far-sighted man but came from sincere thought and study and an appreciation of the service such institutions have the power to render. The American Pharmaceutical Association is such an institution. It is alive and awake to the needs of the age and merits your consideration.

"Your contribution to this fund for a home is essential and your coöperation is vital. The association has a credit balance that reaches every nook of the land, credit gained by service rendered in years gone by. Can we of the profession say that our books balance? Is there not greater truth in saying that an account is due and payable?

"We have it in our power to pay a part of this debt by assuring the success of this campaign for a home, a new edifice in the ranks of professional institutions, typifying, as it will, the ideals of the profession of pharmacy and providing a long-felt need. Let this home be one that we can point to with due pride as standing resplendent for the lasting achievements of the Association."—**C. M. Judd,** retail pharmacist of Rochester, Minn.

Pleased to serve and will be active in the promotion of the Headquarters Building.—**Robert S. Lehman,** past president N. Y. State Pharmaceutical Association, president New York Pharmaceutical Conference.

Desires to assist in the consummation of the project.—"I am certain the North Carolina Pharmaceutical Association will take favorable action. It is to be hoped that the fondest dreams of those who are lending efforts toward the headquarters building for the good of American pharmacy will be fully realized.—**Norman W. Lynch,** vice-president N. C. Pharmaceutical Association.

A wonderful and most worthy work, willing to do my best in its promotion.—**Redmond Mayo,** retail pharmacist, Washington, D. C.

Will be the "Capitol" building of pharmacy.—"The Pharmacy Headquarters Building project should appeal to every druggist in the land as it will be the Capitol Building of his profession. It will be his home and also the home of the efforts of his fellow pharmacists who have done so much to ennoble his profession. He can always look to it with pride and assure himself that he is really something more than a tradesman. For here will be housed the manuscripts, books, experimental work of the many men and women that have gone before him paving the way for greater pharmacy.

"While we must needs exercise our merchandising abilities to make a living,

we are all of us pharmacists at heart and have an ardent interest in the advances that are being made in our profession. We can see the many discoveries unfold themselves as if by magic and we realize with pride that the advances that have taken place during the life of the American Pharmaceutical Association exceed all those of all the other ages combined. We now have a perfect record of the pharmaceutical progress of the last century and should preserve it with accurate data for those to come."—**L. V. Middleton,** Grand Rapids, secretary Michigan Pharmaceutical Association.

Glad to do his bit.—"I shall be glad to do my bit in support of the Pharmacy Headquarters Building campaign. The druggists of the country should be awakened to the fact that without the American Pharmaceutical Association, they would soon arrive at a place where they could not claim any special privileges."—**Frank E. Mortenson,** president National Association of Boards of Pharmacy.

Will gladly assist.—"I will be very glad to assist in any way in my power to establish a headquarters building for American pharmacy. Please let me know, whenever you have the opportunity, what is desired and expected of me."—**John C. Muth,** Baltimore pharmacist.

Both have the same views relative to Headquarters Building.—"The Pharmacy Headquarters Building project has the very best wishes and every appreciation of Mrs. Peacock and myself. Enclosed please find our checks in support of the movement."—**J. C. and Bertha L. Peacock,** Philadelphia pharmacists.

Is highly honored by opportunity to serve.—"Pharmacy owes more to the American Pharmaceutical Association than it can repay. Every pharmacist in the country should consider it a privilege to have a hand in establishing permanent headquarters for the American Pharmaceutical Association."—**Alex F. Peterson,** Missoula, Montana, pharmacist.

Bringing the pharmaceutical industries into closer contact.—"What pharmacist in the whole United States would fail to give his hearty moral and financial support to the successful establishing of a fitting Headquarters Building for American Pharmacy? It is indeed time that American pharmacists concentrated their efforts along the lines of something constructive and I feel that this is the first definite step in bringing the manufacturing, wholesale and retail pharmacists of the entire nation together to further one purpose and with a great interest in common to all.

"In these post-bellum days in which we are now living, when everything seems to be more or less in a state of chaos and turmoil, American pharmacy has not escaped unscathed, but instead has had new worries and concerns heaped upon those which already existed in the ante-bellum days. This state of affairs must be squarely met by every American pharmacist, we certainly cannot sidestep or 'pass the buck,' we must meet the situation, but cannot these many affairs and perplexities be more successfully met with and adjusted by the united and whole-hearted efforts of all pharmacists than by individuals and small organizations? It is my constant prayer that the ultimate outcome may be the uniting of all pharmaceutical organizations under one great, definite head—the American Pharmaceutical Association, for strength and unity in establishing American pharmacy in its proper status—one great, powerful association, voicing the ideas, wishes and sentiments of all American pharmacists, and bearing out the old adage, 'United we stand.'

"Under the united organization system we can raise the entire standard of conditions, and our colleges will gladly coöperate. We can launch a gigantic campaign of publicity, propaganda and general education before the public with astounding results, and we can legislate the existing evils, which confront our chosen profession, out of existence.

"After having read the foregoing, if there can be any doubt as to what I

think of the Headquarters Building for American pharmacy, I will say now that I think it is a most laudable undertaking and the first real step for a complete federation of American pharmacists. The Re-Birth of American Pharmacy!—" **Robert J. Ruth,** field secretary, Philadelphia College of Pharmacy and Science.

The American Pharmaceutical Association directs the trend of American pharmacy.—"For many years no successful move has been made for scientific pharmacy without its aid. The present propaganda to house the Association in a home of its own when carried to success will give it a much stronger position in any future work. It has done wonderful work since its inception without a home or establishment to point to. It has taken a prominent part in every advance movement that has been made. Every student of pharmacy should recognize this and be anxious to do an extra share in the work to come."—**Edward A. Sayre,** Orange, ex-president New Jersey Pharmaceutical Association.

Reaffirms his belief in the need for headquarters.—"I gladly accept membership on the Pharmacy Headquarters Building Advisory Committee. The Northern Ohio Druggists' Association have already given $500 towards the fund. We hope that other associations will follow immediately with similar or larger amounts."—**Eugene R. Selzer,** Cleveland pharmacist.

Problems of pharmacy are local, state and national.—"American pharmacy has proposed and had enacted many laws and regulations for the benefit of public health. Every time that legislative representatives or executive officers have taken organized pharmacy into their confidence, better conditions for the public have resulted.

"A central body emphasizes the power of an organization. Some thought should be given to the future that extension may be made at minimum cost. The movement for a permanent Headquarters for the A. Ph. A. should be financially and morally supported by everybody, and I hope ere long to see such a place established."—**Henry B. Smith,** chairman Legislative Committee, N. Y. State Pharmaceutical Association.

Will aid the worthy project.—Edgar R. Sparks, New Jersey Board of Pharmacy.

An appeal for a permanent home.—"It is planned that the building shall contain the most complete pharmaceutical library in America, and also laboratories for various investigations, together with a permanent exhibition of drugs and chemical preparations for the benefit of students and research workers in pharmacy and medicine. In short, the building will be a Monument to Progressive American Pharmacy.

"Now, fellow pharmacists, is such a home not worthy of your moral and financial support? Are you going to lend your liberal assistance to this excellent undertaking in order to give to the present generation this most needed structure, and to posterity an inheritance of which your sons and daughters may feel proud?

"Let us all get together and work for the realization of the one great goal—a shrine for American Pharmacy, and a permanent home for the American Pharmaceutical Association."—**Emil Starz,** pharmacist and chemist, Montana Livestock Sanitary Board.

The Pharmacy Headquarters to be an "International Shrine."—"The Pharmacy Headquarters, when completed, will serve as an outstanding monument to the devotees of pharmacy not only of America but of the world.

"Great as has been the genius and inspiration that has come to us from foreign lands through pharmaceutical research and achievement, it remains for American vision and enterprise to crystallize the aspirations and ideals of the profession into a noble shrine unto whose feet may come the followers of pharmacy from all lands and for all time, to seek inspiration and courage and hope.

"The building itself will mark an epoch in the history of pharmacy and those of the present generation are fortunate indeed in being afforded an opportunity to

sponsor such a laudable and enduring enterprise."—**P. Henry Utech,** president Pennsylvania Pharmaceutical Association.

Our opportunity for pharmacy.—"I am delighted that the American Pharmaceutical Association is appealing to the pharmacists of the country for funds with which to provide a Headquarters Building that shall worthily represent the organization and American Pharmacy.

"Every pharmaeist who takes pride in his profession should coöperate heartily, and to the best of his ability, in supporting this effort to properly house the activities of its most representative organization, as well as of all others of allied interest which may care to be thus associated.

"The very thought of being able some day to point with pride to a splendid building given by *pharmacists* for the use of the American Pharmaceutical Association, as well as other national and state pharmaceutical organizations, causes feelings of joy to rise within me and bids me give the enterprise my wholehearted support and earnest coöperation in every way."—**L. L. Walton,** past president N. A. B. P., Chairman House of Delegates, A. Ph. A.

State and county associations contribute.—"In our state convention held last June, a resolution passed, to the effect that the Indiana State Pharmaceutical Association contribute to the American Pharmaceutical Association the sum of $500 payable in installments of $100 per year for five years. You no doubt will hear from the Lake County Pharmaceutical Association, of which I happen to be President also. At any rate I will call their attention to a contribution, even though it may be small."—**John W. Weiss,** Hammond, president Indiana Pharmaceutical Association.

Hopes results will exceed expectations.—"The Texas Pharmaceutical Association endorsed the Pharmacy Headquarters Building movement at the convention held in Galveston last June, by resolution as follows:

> Resolved, First, that this association approve the plan of the American Pharmaceutical Association affiliating state associations with the national body; that affiliation is hereby voted and that our Secretary is instructed to so inform the Secretary of the American Pharmaceutical Association.
>
> Second, that with reference to the request for subscription to the building project of the American Pharmaceutical Association, the President of our association is hereby requested to appoint a committee of three members to solicit funds for this meritorious enterprise, and report at the 1924 meeting of the Texas Pharmaceutical Association; such funds to be augmented with a subscription from the association, if possible.

"I shall be glad to assist in every way I may in making the campaign successful, and trust the results will exceed the expectations of the committees in charge of this laudable undertaking."—**W. H. Wentland,** president Texas Pharmaceutical Association.

As vital to mankind as medicine.—"It is my opinion that nothing could do more than this campaign to strengthen the feeling of a National organization, the consciousness on the part of every pharmacist in the country, no matter how small his business might be, that he was a member and integral part of a body whose power and influence was being exerted for his individual benefit. The Headquarters Building will be a concrete and physical evidence of the importance of the national association, and cannot but increase the prestige of pharmacy in general and of pharmacists individually throughout the entire country. The participation by every druggist in this campaign will certainly bring to him a reward, not only in the actual material fruit of his endeavor, but in a sense of union with his fellows and a realization of the value of whole-hearted coöperation. And the success of the campaign will be due to the fact that a definite goal is its end,—a building which will typify not only to the individual pharmacist, but to the public in general, the importance, power and prestige of a profession which is, in its field, as vital to mankind as medicine.

"I wish the campaign prompt and complete success, and shall be glad to do

all I can to help the achievement of a goal of which I am unqualifiedly in favor."—**J. W. Westcott,** of Hynson, Westcott & Dunning, retail pharmacists of Baltimore.

An advocate for a number of years.—"I am in hearty accord with the efforts to establish a permanent Headquarters for Pharmacy. I have been an advocate of this for several years and have discussed it with Prof. Beal and others and am delighted to see the movement started off with so much momentum."—**W. R. White,** Nashville pharmacist.

A record of accomplishment and great possibilities for greater service.—"To have sponsored everything worth while from start to finish that pertained to pharmacy and indirectly to the public good, to have fostered the present state organizations, the pharmacy laws, to have sustained the Pharmacopœia, to have created the National Formulary, the Pure Food and Drugs Act, to have been instrumental in the creation of the National Association of Retail Druggists, the National Association of Boards of Pharmacy, the National Drug Trade Conference are, to say the least, worth while accomplishments of the American Pharmaceutical Association.

"By the coöperation of every pharmacist in America in a small way or in a large way according to their means, we can build this National Headquarters Building and have a home that we can point to with pride and also state to our sister organizations or any other organization of an unrelated nature that in this building we not only have a home but that with this home we are able to accomplish many things hitherto impossible.

"Fellow pharmacists, don't envy the physician with his well organized body, don't hate him because his profession is helped forward due to wonderful coöperation; come forward with a smile on your face and a determination to do your part for the Headquarters campaign whether it be large or small; with these signs we will conquer."—**Charles E. Nelson,** retail pharmacist, Corinth, Miss.

COLLEGES.*

Pharmacy on a high professional plane will have immeasurably increased capabilities for public service; and the country needs the services of such pharmacists as never before.—"A Home—a permanent National home—is a fundamental need of American pharmacists in their struggle to maintain pharmacy as a dignified profession in the United States. The American Pharmaceutical Association, with full realization of this need, plans to erect and maintain a headquarters building for this purpose. I am convinced that the erection of such headquarters would be of tremendous benefit to American pharmacy and could not fail to raise immensely the tone of the pharmaceutical profession in the United States and its capacity for public service. Such a center for American pharmacy will bring about the correlation of the multifarious lines of work that are included in pharmacy. There are few learned professions that demand more diverse kinds of knowledge or more different sorts of skill. Unquestionably, research in pharmacy, not merely in connection with the U. S. Pharmacopœia and the National Formulary, but also in other directions, will be vastly promoted.

"That the stimulation of creative research in pharmaceutical colleges and in other institutions is fundamental to the welfare and future progress of pharmacy is manifest. Only by research can the pharmacist keep pace with the medical therapeutist and share with him in the progress of therapeutics and preventive medicine. If the pharmacist fails in this direction, he must sink ultimately into the rôle of the dispenser of a few botanicals and galenicals. These will become an ever diminishing percentage of the therapeutist's armamentarium as new synthetics, new sera, new biological preparations are developed. With its own home, with its own center for research and for the interchange of ideas, the Ameri-

* Some of the correspondents may be listed under "Retail Pharmacists," articles from others have been printed, or will be in later issues.

can Pharmaceutical Association and affiliated organizations would be in a position to stimulate and energize the entire pharmaceutical profession as a profession in a manner that would hardly otherwise be possible."—**C. L. Alsberg,** Leland Stanford University.

Pharmacy needs to establish for itself a class consciousness.—"In accepting service as a state chairman and as an advisory committeeman for the Pharmacy Building Campaign, I recognize that I am engaging upon a work that should have been started years ago and am assuming an obligation that every American pharmacist should feel privileged to accept. The undertaking is so praiseworthy, the end sought is so vital to progress, and the attainment of such a coördinating, correlating agency is so necessary to group welfare that I find myself wondering how we could have waited all these years to begin such an obviously necessary unionizer as a central home for us all will shortly prove itself to be.

"Pharmacy needs to establish for itself a class consciousness that will weld its membership closer together; that will fuse its scattered forces into a close-knit family group; that will inspire in its individual workers a stronger loyalty to professional kinsmen and a higher regard for professional standards. It needs to set up an enduring structure from which its multiform activities may be directed and in which its countless problems may be worked upon. Having a headquarters building, a central home, a cohesional agency will contribute mightily to these ends. Pharmacists, therefore, owe it to the calling into whose service they have dedicated their lives and to themselves as beneficiaries of this uplifting movement to give generously of their means and unstintedly of their persuasive efforts with others in order that the campaign for building funds may be consummated in such manner that the vision of their leaders may be transformed into a concrete materialization of pharmacy's preëminent requirement."—**J. G. Beard,** University of North Carolina, secretary State Association, editor, *Carolina Pharmacist.*

Prestige and tangible evidence of character of the profession of pharmacy.—"A building of the kind proposed will be of direct and great value as the headquarters of the Association and its varied activities, but it will be of even greater value as tangible evidence to the general public of the character of the profession of pharmacy. Every pharmacist who is loyal to his calling should realize this and understand that his contribution to the Headquarters Building Fund is more than a gift; it is an investment on which the returns will be received by him and his profession for a long time to come."—**Theodore J. Bradley,** dean Massachusetts College of Pharmacy.

Affects the interests of the entire people.—"I am deeply interested in the development of this idea because I feel that it is right and proper that this great organization, the American Pharmaceutical Association, should have a headquarters building.

"I feel that the American Pharmaceutical Association, being one of the largest of its kind in the country and one of the most important in its relation to the welfare of the people, has the same necessity for a headquarters as similar organizations, such as the American Medical Association, or the American College of Surgeons, or any other national organization affecting the interests of the entire people.

"So far as the building itself is concerned, it should be of a size and character to meet the needs of the work of the organization and of an architectural dignity that would reflect the importance of the work which it would represent.

"It is extremely important that the officers of the organization should have some fixed abode for the proper conduct of the business and the keeping of books of all kinds and records. The collection and establishment of a library which would be perhaps the most comprehensive that the profession has in the country, for reference and research purposes for the use of the officers of the

organization in giving information which may be desired by the members or others and the use of such a library for those who may wish to consult it, is very important. Here would be a permanent depository forever of the literary material of the profession.

"Another very important feature is making a provision for the various publications of the Association in this building. Perhaps one of the most useful purposes of the Association is the dissemination of information to its members or to the people, and for this an editorial and printing section is needed in order that knowledge of this kind may be diffused with ease and economy to the nation and to the world.

"The establishment of research laboratories, if possible, would be of particular value in connection with this organization; laboratories whose service would be available for the solution of innumerable questions which must come up for solution to the Association as a whole and to the officers of the Association, when referred to them for decision."—**William C. Braisted,** president of Philadelphia College of Pharmacy and Science.

Centralization will reduce or, perhaps, eliminate working at cross purposes.—"We all want to see pharmacy progress but we are not always in agreement about procedure. Centralization will reduce or perhaps eliminate working at cross purposes, it will bring about genuine coöperation and in turn constructive effort. No one can guess how much we can accomplish if all interests work together.

"Why should each of us give? For the same reason that we give to any other cause, the church or the community budget, because we love it and believe in it. Any pharmacist worthy the name believes in the dignity and worth of his calling. However much he has been drawn to the commercial phases of it he recognizes the fact that he renders some professional service, he knows that he is more than a merchant. In a business way and in a professional way he will profit by every bit of progress that pharmacy makes. Centralization will add so much to the prestige of pharmacy that it is bound to be reflected at the farthest outpost."—**Zada M. Cooper,** University of Iowa.

Improved service and influence of organized pharmacy.—"The American Pharmaceutical Asosciation is the most powerful influence in existence to preserve pharmacy as a profession in the eyes of the public and other professions. Its Journal, Year Book, National Formulary, and scientific programs evidence this. One of the greatest drawbacks to advancements along these lines is the lack of centralized power and facilities for developing these forces. A building which will house all its activities under one roof, which will bring together its active officers in one city, which will provide facilities for research and service to its members through a properly equipped and manned laboratory, which will provide a library for the preservation of pharmaceutical knowledge, is the one thing above all which will keep professional pharmacy in the eyes of the public. All the things mentioned above should tend to improve the Journal, Year Book and National Formulary, thus making them more valuable to the members. Service to members through the laboratory and library should greatly enhance the value of membership. As service improves, new members should be more easily secured. In this way a building starts an endless chain of events which will increase the power and influence of organized pharmacy in all divisions and thus the spirit of professionalism in pharmacy, which is the one big thing that distinguishes it from other commercial activities, will be kept alive."—**A. H. Clark,** University of Illinois.

Movement for securing funds for headquarters and equipment gaining force and success assured.—"The reorganization of the American Pharmaceutical Association, accomplished at the Asheville convention, gives promise of increased usefulness of the organization and of greater membership. The hearty support accorded by the state associations and their willingness to coöperate with the

parent body emphasizes the need of a central headquarters for the Association, where the permanent offices may be located, facilities for research established and a clearing house for pharmaceutical information made available.

"Every pharmacist is interested in this project and everyone will find it well worth while to contribute freely of his time, energy and means towards securing for pharmacists the substantial benefits that will come from the establishment of a permanent headquarters and clearing house, where all branches of pharmacy may bring the problems which arise from day to day and upon whose solution so much depends. Every American pharmacist should take pride in furthering this movement. Every national, state and local organization of pharmacists should endorse it and coöperate toward its success. Manufacturing pharmacists, wholesalers, retailers—all are interested and will be benefited—all should contribute their share toward the common welfare."—**Wm. B. Day,** dean College of Pharmacy U. of Illinois; secretary Illinois Pharmaceutical Association; secretary A. Ph. A. and its House of Delegates.

Glad to assist in the campaign for Headquarters Building and serve on the Advisory Committee.—Jacob Diner, dean Fordham University College of Pharmacy.

The American Pharmaceutical Association represents all phases of pharmacy.—"After many years of recurrent discussion of the matter, the American Pharmaceutical Association reached a decision some two years ago to erect and equip a Headquarters Building, and to begin immediately the work of raising the necessary funds.

"It is interesting to note in this connection that it was a retail pharmacist, Mr. Samuel L. Hilton of Washington, D. C., who was immediately responsible for this decision and that the preliminary work of perfecting an organization to raise the funds was begun during his term of office as president of the Association. It is also significant that it is a retail pharmacist, Mr. H. A. B. Dunning of Baltimore, Maryland, who is the moving force in the present intensive campaign which is to be conducted to bring this project to completion. These are incidents which point out clearly the direction in which the interests of the Association lie, and serve as ample material with which to refute the statement frequently made by the rank and file of pharmacy, that the Association is composed largely of and is dominated by men of the purely professional type.

"The facts are that the American Pharmaceutical Association has always been largely composed of retail pharmacists and has always placed its faith in the rank and file. In the plan of reorganization put into effect last year at Asheville, it literally placed the management of its affairs in the hands of the rank and file by giving the State Pharmaceutical Associations a ruling voice in the House of Delegates. The opportunity is now at hand for the rank and file to show in an unmistakable manner that this confidence has not been misplaced.

"The Association as now organized is prepared to truly represent all phases of pharmacy. It is now up to the individual pharmacist to put his shoulder to the wheel and to make the Association a force which will be felt wherever any of the interests of pharmacy are at stake. Every pharmacist, therefore, who cherishes the dignity of his profession and who realizes his responsibilities should contribute to this fund to the fullest extent of his means.

"This is the most important movement which has taken place in the history of pharmacy in America. Let us, therefore, give in proportion to our means and make an assured success of the campaign about to begin."—**A. G. DuMez,** Hygienic Laboratory, Washington, D. C., Editor YEAR BOOK, A. PH. A.

An appeal to Mississippi pharmacists.—"Plans are now under way to provide funds for the erection and endowment of a permanent home in some place best suited to the needs of American pharmacy. As would be expected, this splendid movement is being fostered by the American Pharmaceutical Associa-

tion. Surely no one will for one moment doubt the necessity for such a headquarters.

"It should be understood that it is not necessary to be a member of the A. Ph. A., in order to subscribe to this movement, but upon making a subscription of as much as twenty-five dollars one automatically becomes a member. It should also be understood that it is not a donation, but an investment that will pay back many times over.

" In order that pharmacists may subscribe and at the same time not be burdened, the provisions of the plan provide for those who wish to invest say, one hundred dollars, to divide it into ten equal payments. Matters would be simplified by making out ten post-dated checks and mailing them to Dr. H. A. B. Dunning, Baltimore, Md.

"I feel sure that the pharmacists of Mississippi will do their part toward making the greatest movement ever started for American pharmacy a success. May I ask that you join your brother pharmacists in contributing to this forward movement?"—**H. M. Faser,** dean Pharmacy Department, U. of Mississippi.

Every pharmacist should be given an opportunity to share in the Headquarters Building.—"There is no question but that the American Pharmaceutical Association which has proved itself to be the fountain head of so many splendid movements and organizations in pharmacy should be intrusted with this pharmaceutical headquarters building. There should be no question in the minds of any professionally trained or far-seeing pharmacist that such a building with its equipment for organization, publication and research work will be a most valuable asset to all American pharmacy.

"Many pharmacists in America know little of the objects and attainments of the American Pharmaceutical Association. The occasion of this drive will offer excellent opportunity to acquaint them with this Association. These aims and attainments do not conflict with those of other great national pharmaceutical organizations and every pharmacist the country over can surely subscribe to the aims and ideals.

"I sincerely trust that in the organization of the drive an effort will be made to reach every drug store in the United States and that no man connected with pharmacy can say that he has not had an opportunity to have a part in this great achievement. Here's to the prompt and complete success of the movement!"—**E. N. Gathercoal,** University of Illinois.

The worth-whileness of the movement.—"I personally wish to record my appreciation of the enterprise to establish a Pharmacy Headquarters Building which Dr. Beal very correctly calls 'The worth-whileness.' It should appeal to every thinking person as the most sensible and promising matter that has been before the profession for many a generation."—**Ivor Griffith,** Stetson Hospital, Editor American *Journal of Pharmacy,* P. C. P. and Science.

The American Pharmaceutical Association deserves a memorial.—"This Association in itself deserves a memorial for what it has done in the field of scientific research. It fully merits a permanent home for the history it has made, the rich historical material it has collected, and the larger amount it will secure when it can arrange and display it. The collecting of this record of work in all fields of our profession would bring about a unity, a common feeling of kindredship in the many allied organizations that would weld it into a harmonious whole working for a common cause. The value of such affiliated efforts cannot be estimated.

"As a place of research, well equipped for special investigations where the problems of the pharmacopœia, food and drug laws, general and specific legislation are investigated or originated, where co-workers in different fields would 'rub elbows,' it would offer a stimulus to pharmaceutical research that would result in an achievement of a still more enviable record in scientific fields.

"As for me, however, my deepest interest lies in the getting together, by a

general contribution from every one, the manufacturer, the wholesaler, the jobber, the store owner, the clerk, the traveling salesman, the teacher, the student and the examiners, all working to provide a home for themselves. In family life, in student life, this united effort in a common giving for a home, has been the most forceful agent in uniting and solidifying all those privileged to take part in its program. This has been proven in our college life in bringing together the upper and lower academic classes and the professional schools. It should be even more effective in consolidating the more scattered and less allied interests of pharmacy. So even beyond the question of establishing a Headquarters Building I see the opportunity for a wonderful and continuous movement for a greater and more united pharmacy in America."—**E. V. Howell,** University of North Carolina.

The American Pharmaceutical Association has done effective work in spite of widely scattered facilities.—"Surely there can be no doubt in the mind of any thinking pharmacist regarding the crying need of a Pharmacy Headquarters Building. Provided with well-equipped laboratories for research in U. S. P. and N. F. revision and in pharmaceutical science, the organization will then be in a position to render to pharmacy a service that has never before been rendered. The pharmacists of the United States are fully aware of the great effectiveness of the American Medical Association with its well-equipped and well-manned research laboratories in Chicago. This association is doing a great work for the profession of medicine and no physician to-day questions the wisdom of the organization, in establishing and maintaining research laboratories. Does it pay? Ask any doctor of your acquaintance and you will get the answer. The A. M. A. has placed medicine in the front rank of professions in the United States and every physician is enjoying the fruits of its work.

"Now is the time to do the same for the profession of pharmacy. It will cost each of us very little, but the aggregate of these small contributions will place our profession upon a solid foundation and will do for each of us the work that we cannot do for ourselves. Each and every one of us will receive untold benefits from it. Can we afford to miss the opportunity of investing our mite in a project that will return us 100 per cent. on our investment? Can we afford to stand outside and let our fellow pharmacists pay for the benefits that we will receive? If we give a little serious thought to these questions, I am sure we will feel it an opportunity for the benefit of the profession we love."—**C. B. Jordan,** Purdue University.

Hopes pharmacists will back the proposition to a man.—"Every pharmacist in this country owes a debt of gratitude to the A. Ph. A., and should not only consider it a duty, but a pleasure to invest liberally in this cause. There is no association within my knowledge that has worked so unselfishly, and that is so free from graft and corruption as this Association. This should unquestionably inspire confidence on the part of the pharmacist in those who have been selected to head this excellent project.

"It is also important for the reason that the carrying out of such a program should have the effect of very greatly increasing the membership; one of the great needs of this organization. There is no good reason why the A. Ph. A. should not have as large or larger membership than the American Medical Association, and with such an association there is nothing that is just or reasonable in the way of legislation that could not be demanded with some degree of assurance.

"Let us hope that the pharmacists of this country will have sufficient foresight to get back of this proposition to a man, and erect a building that will not only be an inspiration to the future pharmacists, but will serve as a worthy monument to those of the past who have so faithfully fought for the cause of American pharmacy."—**E. O. Kagy,** dean Highland Park College of Pharmacy.

The American Pharmaceutical Association a service institution.—"The American Pharmaceutical Association has done a great work for American

pharmacy. It can, with adequate equipment and support, do even a greater work in the future.

"The American Pharmaceutical Association is purely a service institution. Every American pharmacist, and from the most practical standpoint, should interest himself in seeing that the Association is so organized, equipped and supported as to render the best possible service.

"Its officials have decided that a headquarters building, instead of the scattered, rented and donated space now being used, is the most pressing need. American pharmacists are, therefore, being asked to contribute to this fund, and I believe that they will do so if the need is brought frankly and fully to their notice. I am doing all I can in support of Dr. Beal, Dr. Dunning and the many others who are working to collect the necessary funds for this building."—**E. F. Kelly,** University of Maryland, treasurer A. Ph. A., secretary Maryland Pharmaceutical Association.

Headquarters to be a store-house of information.—"The time has gone by when a pharmacist can live to himself. Indeed the time has gone by when state associations can consider that their work is finished when they have met to consider matters of pharmacy peculiar to their own states. Indiana can profit by what Massachusetts has done and California by what has been acomplished in North Carolina. But it is not only in local matters, it is in large national questions that there must be concerted action. Furthermore, action must be frequently immediate.

"Others may be thinking of research laboratories and of spending the money and using the building for the furtherance of problems which belong to individuals and the colleges. It may also be used in answering questions which will help the retail pharmacist who does not always have the facilities for investigation. If the Headquarters Building is a storehouse of information containing the literature and the accumulated experience of its own workers it will be of incalculable benefit to the retail pharmacist. It may be made and doubtless will be made an institution of service to every branch of pharmacy.

"The A. Ph. A. Headquarters project is one of paramount importance and interest to American pharmacy. If it were not so Dr. H. A. B. Dunning of Baltimore would not have accepted the chairmanship of this committee having this campaign in charge. His name is a guarantee that a structure will be reared worthy of American Pharmacy, in the interests of American pharmacists and that will protect and at the same time advance American pharmacy. Everyone can share in the structure and when it is completed everyone will be welcome and at last pharmacy will have a home. The individual links will be united into a chain of strength, durability and efficiency."—**Henry Kraemer,** Mt. Clemens, Mich.

Glad to render service.—Edward H. Kraus, University of Michigan.

No question regarding outcome.—"There is in my mind no question regarding the outcome of the Pharmacy Headquarters Building plan. This statement I make without any reservation whatever."—**John Uri Lloyd,** ex-president A. Ph. A.

Greater prestige will obtain and result in increased usefulness of pharmacy in promoting public health.—Charles E. Mollett, University of Montana.

Apply united effort and success is assured.—J. C. Moore, Cass Technical High School, Detroit.

The plan makes it possible for the A. Ph. A. to serve pharmacy as never before.—"Now, just at the time it is preparing to function in its broader sphere, the securing of a permanent home for the A. Ph. A. is almost a *sine qua non* for its success. Potentially, the A. Ph. A. is a great organization. Its failure to do for pharmacy all that it should have done is due largely to two things: First, it has never had a man giving all of his time to selling the Association to the 50,000

proprietor pharmacists in America. Second, *it has had no permanent headquarters.****

"Dr. Dunning's enthusiasm is catching. He stands up and talks about the permanent headquarters in a way that makes people believe in him. When we gather at Buffalo for the 1924 meeting the campaign will be over and the headquarters will be assured. It will be a jubilee meeting!"—**Wortley F. Rudd,** Medical College of Virginia.

The A. Ph. A., the welder of never before connected drug activities—to the advantage of all units involved.—"The American Pharmaceutical Association has naturally a unitizing influence. It would become to a certain extent automatically the welder of never before connected drug activities—to the advantage of all the units involved. It needs a place to do its best work. In fact, a permanent self-owned headquarters has become one of the things necessary to guarantee the perpetuation of the Association as the fountain head of pharmacy. A man may get along without a home but a scientific institution cannot. A rented home may serve the individual, but an institution must be unassailable in its continued ownership of suitable premises for offices, laboratories, councils, conventions, conferences, library and inescapable museum accumulations. It cannot thrive when trammeled with the limitation of a mere tenant's occupation. No beck-and-call place of existence ever favored the founding of a center for a science or art. The American Pharmaceutical Association has reached the limit of self-containment without a headquarters. Its functions have grown so varied that they demand the protecting egis of a home. 'Home' expresses what is needed: 'headquarters' is too formal—it chills; 'home' enthuses. If every worker in the field of pharmacy, whether in direct contact with the public or practicing in laboratories, will do a little—give a little, the undertaking will be settled within the year and a bright prospect for the future of pharmacy offered to the gaze of aspiring beginners."—**L. E. Sayre,** University of Kansas, Past President, A. Ph. A.

"One for all, all for one."—"Often have we experienced the feeling of despair in hoping that things might somehow be made a little better. Our opportunity has at last come. We are to have the privilege of putting our shoulder to the wheel in a 'one for all, all for one' movement which should insure the future of American pharmacy.

"The recommendations of the Headquarters Building Committee are to the point, the foundation of the organization is sound, the promise of the future offers little opportunity for doubt. Nothing remains for us to do except boost—yea, everlastingly boost for the Headquarters Building for American Pharmacy."—**E. R. Serles,** So. Dakota State College.

Wise for every organization to have a home.—"There is no doubt but that centralized pharmacy, in the sense of a pharmaceutical building, will go a long way toward commanding the respect that we need in legislative halls. As the years go by it will also assume the dignity that the profession of pharmacy should have, and this project alone will enable our legitimate drug associations to disengage themselves from entangling alliances. Pharmacy will be able to hold up its own head, without the aid of props.

"I believe that this is a project to which every pharmacist may contribute and feel that what he gives it is going for a worthy cause."—**Edward Spease,** Western Reserve University.

An undertaking he has always believed in.—"This is a work which I have always believed in, and know to be absolutely necessary for the further progress of American Pharmacy. There is no question in my mind whatever that pharmacy in this country needs a centralized place in which every good movement affecting the profession will be initiated."—**W. F. Sudro,** North Dakota Agricultural College.

Iowa approves and contributes.—"The Iowa State Pharmaceutical Association at the recent meeting in Des Moines voted to contribute five hundred dollars ($500.00) toward the Pharmacy Headquarters Building and gave unanimous approval to the project.

"When the time comes for the individual subscriptions from pharmacists and allied interests we should see to it that Iowa goes over the top as usual."—**Wilber J. Teeters,** University of Iowa.

It is eminently fitting that the A. Ph. A. should father a movement for the erection of a building and the establishment of permanent headquarters for all pharmaceutical interests in America.—"Every organization of drug interests and every individual associated with drugdom will be given the opportunity of participating in the establishment of national headquarters for pharmacy. Minnesota, having the first state meeting, had the honor of leading the sister state associations in favorable action and coöperation. Illinois, Indiana and Iowa associations followed with subscriptions and approval.

"While the main purpose is utility, the accomplishment will be a monument to pharmacy and a credit to every one in any way associated with the calling of pharmacy."—**H. M. Whelpley,** St. Louis College of Pharmacy, editor *Meyer Bros. Druggist,* ex-secretary Missouri Association, past official in important offices, including president, A. Ph. A. Secretary Board of Trustees, U. S. P.

The prestige which the A. Ph. A. has given to pharmacy has been helpful.—"It affords me great satisfaction to contribute to the best of my ability to the noble cause of stabilizing the American Pharmaceutical Association by providing a permanent home where its activities may be pushed with greater ease and greater effectiveness. It is my hope that all Rexall druggists, wherever they may be located, will avail themselves of this opportunity to forward the cause of pharmacy by contributing to an enterprise which will do so much toward placing it where it belongs in the esteem of the public.

"I assure you of my very best endeavors for the cause and ask that you will not hesitate to command my services in whatever way they can be used to the best advantage."—**Thomas V. Wooten,** secretary International Association of Rexall Clubs, for ten years secretary of the N. A. R. D.

Will link up more closely the work of pharmaceutical associations.—"As Secretary-Treasurer of the National Association of Drug Clerks I have seen the work of the A. Ph. A., I have realized the absolute necessity of a centralized authoritative body within the pharmaceutical world that could speak for the industry at large and I personally believe that a home for the A. Ph. A. will assist in the work of linking up more closely the work of the various state pharmaceutical associations and will in time provide a consolidation basis for the various organizations within the drug field, which are serving the respective industries separately and the several organizations within the retail field but which are overlapping."—**Paul J. Mandabach.**

SUPPORTING PHARMACY HEADQUARTERS BUILDING BY RADIO.

Dean F. J. Wulling has included more or less extended references to the A. Ph. A. Headquarters Building in his series of radio talks. Those who have opportunities for transmitting should secure copies of these talks from Dr. E. L. Newcomb. Hundreds of comments from "listeners-in" have been received, among them messages from Ohio on the one side and North Dakota on the other. The sub-divisions of these talks are indicated by the following: "The evolution of the modern drug store," "Two classes of pharmacists," "Pharmacy designations," "Professionalism growing," "Public health protected," "Association works in interest of public, etc."

MANUFACTURERS AND WHOLESALERS.

General endorsement has been given by prominent manufacturers and wholesalers, many have made financial contributions and some of the gifts represent high figures; in every instance the responses to the call were made with that broad and liberal consideration which marks their business transactions.

The articles presented, in part, in this issue of the JOURNAL are principally from those active in retail pharmacy and teaching institutions; the expressions of those engaged in manufacturing and in supplying the other divisions of the drug trade are just as encouraging and the contributions most liberal. Never has there been greater unanimity and we repeat by reference with added emphasis the words on page 270, relating to helpful coöperation.

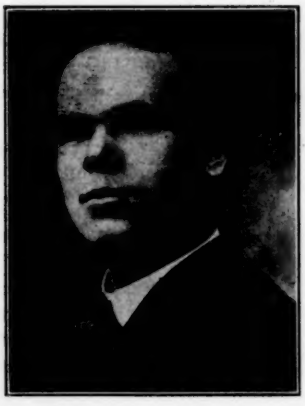
PUBLICATIONS.

What has been said in the foregoing applies with relative force to the publications of pharmacy and other drug trade activities—they have made it unanimous.

The endorsements of the headquarters program have been given editorial sanction and individual support. The following quotations from the "Canons of Journalism" are applicable: "The primary function of newspapers is to communicate to the human race what its members do, feel and think." * * * "To its opportunities as a chronicler is indissolubly linked its obligation as a teacher and interpreter." The pharmaceutical press, applying a comprehensive definition, has faithfully and efficiently performed a signal service and stands ready for continued coöperation.

James H. Beal, Urbana, Ill., Chairman, Headquarters Building Fund Committee.

H. A. B. Dunning, Baltimore, Md., Chairman, Headquarters Building Campaign Committee.



E. L. Newcomb, Minneapolis, Minn., Director of Publicity, Headquarters Building Campaign Committee.

PHARMACY HEADQUARTERS WILL IMPRESS ALL CLASSES OF CITIZENRY.

Joseph Jacobs of Atlanta, Georgia in offering his services for the promotion of the Headquarters Building referred to an article, written by him quite a good many years ago, concerning the Pharmaceutical Museum at Nuremberg and suggested that a Museum of Pharmacy be provided for in the building. Such an exhibit of pharmacal implements would tell the story of the progress of pharmacy.

"The building of such a home for pharmacy," he said, "will impress all classes of our citizenry with the dignity and worth of our profession, increase our own pride in its past accomplishments, and stimulate the pharmacists of the future to still higher endeavor."

THE NATURAL PLANT COLORING MATTERS.*

BY JOHN H. WURDACK.

Two decades ago our knowledge of the chemistry of chlorophyll and of the anthocyanins was virtually nil. Since that time the brilliant researches of Willstätter and his collaborators have opened up partially the structure of chlorophyll and have unveiled the constitution and characteristics of many of the red, violet and blue colors known collectively as anthocyanins. It is now possible to speak with a fair degree of intelligence about plant colors though numerous problems still await solution.

The number and variety of coloring matters in the plant world is large. Besides those that exist in the living plant there are also others which are formed only upon its death as the result of a natural or artificially induced fermentative action as illustrated in the preparation of litmus and indigo and in the coloration of cinchona bark when removed from the tree. Many have been from time immemorial, and still are, used as dyes, and some like alizarin and indigo are largely prepared synthetically from coal-tar constituents. Our discussion cannot deal with every known plant coloring but will confine itself to the following well-defined groups:

Chlorophylls, the practically universal green coloring of leaves, etc. They are insoluble in the cell sap and occur in the chloroplasts.

Carotinoids, which appear as yellow, orange or red pigments and include carotin, lycopin, xanthophylls, rhodoxanthin and fucoxanthin. They are insoluble in the cell sap and occur commonly either in a relatively pure form in the chromoplasts or associated with chlorophyll in the chloroplasts.

Anthoxanthins, including a number of yellow pigments sparingly soluble in water but soluble in acids or alkalies forming yellow to red solutions.

Anthocyanins, which are the red, violet or blue coloring matters of flowers, many fruits and some leaves. They are found in solution in the cell sap or, when the concentration is high, they may be seen as crystals or amorphous granules.

The anthoxanthins and the anthocyanins occur in the plant either in solution or separated out in crystalline or amorphous form, but chlorophyll and commonly the carotinoids are found in minute bodies known as chromatophores or plastids. Chromatophores occur in all plants except slime-moulds, bacteria and fungi; are not necessarily present in all cells and tissues, but are plentiful in those tissues concerned with specific physiological or ecological functions; and contain certain characteristic pigments or can form pigments under certain conditions. They are classified into the following groups:

Chloroplasts, of varying shape, and composed of the stroma (protoplasm) in which are imbedded the grana (green viscous drops or granules containing chiefly chlorophyll mixed with yellow pigments).

Chromoplasts, which are yellow, orange or red, the pigment occurring as amorphous globules or vesicles, or as crystals.

Leucoplasts, which are typically colorless but may change to chloroplasts or chromoplasts. Those which change transported soluble carbohydrate into starch grains in the storage cells are termed **amyloplasts.**

* Scientific Section, A. Ph. A., Asheville meeting, 1923.

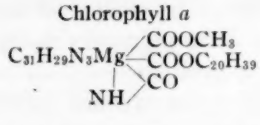
CHLOROPHYLL.

The chloroplasts of leaves are unequally distributed, more occurring on the upper surface, which is therefore deeper colored, than on the under side. The microscope shows them to be more plentiful in the palisade than in the spongy parenchyma cells; for instance, in the leaves of the castor oil plant, *Ricinus communis*, there are about 403,000 per square millimeter of surface in the palisade tissue and only 92,000 in the same area of spongy parenchyma. Chlorophyll constitutes their chief coloring matter but xanthophylls, carotin and sometimes other yellow pigments are also present. Chlorophyll does not develop in leaves grown in the dark as illustrated by the colorless sprouts of potatoes or onions stored in a dark cellar, and it gradually disappears from green parts denied light as in the blanching of celery when banked up with earth. It is soon destroyed by bright light, the plant remaining green only because of its continual renewal brought about by the agency of light in the active plant. In autumn, when the plant no longer produces chlorophyll, it disappears, being bleached to colorless products; and the yellow colors, which are less easily bleached by light, are seen because they are no longer masked by the chlorophyll.

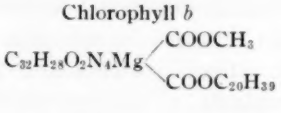
Leaves ordinarily contain 0.5% to 1% of their dry weight of chlorophyll except the conifers which contain less. In stinging nettle leaves Willstätter found 0.720, 0.580, 0.656, 0.675%; in grass, 0.671%; in horsechestnut leaves, 0.993–1.018%; etc.; but in pine needles only 0.254%. The usual method of extracting it from green tissues consists in first steeping the fresh material in hot water to destroy oxidizing enzymes and then extracting the coloring matter with warm alcohol. An improved method makes use of dried material, the extracting being performed in the cold by 90% alcohol or 80% aqueous acetone, ether or methyl alcohol also serving the purpose. Alcoholic extracts of leaves always contain, not only chlorophyll, but also carotin, xanthophylls, lecithin, wax, etc., which may be removed from the chlorophyll. Lengthy exposure of such solutions to light will cause the chlorophyll to disappear, the green solution becoming yellow from the presence of carotin and xanthophylls which do not bleach so readily. For details of extraction and purification see *Ann.*, 380, 177–211, 1911.

The natural chlorophyll of leaves is an amorphous mixture of two substances; namely, chlorophyll *a* ($C_{55}H_{72}O_5N_4Mg$) and chlorophyll *b* ($C_{55}H_{70}O_6N_4Mg$) to which the following provisional constitutions are assigned:

Chlorophyll *a*



Chlorophyll *b*



They are both methyl phytyl esters, the former containing also a lactam grouping. It may also be stated here that the crystals of "chlorophyll" sometimes obtained on moistening plant sections with alcohol and allowing this to evaporate slowly are not true plant chlorophyll which latter is non-crystalline, but are composed of a derivative of each of the above where the phytyl group has been replaced by the ethyl group through slow action of the ethyl alcohol in the presence of the enzyme chlorophyllase which ferment seems always to accompany chlorophyll in greater or less amount.

A close relationship exists between chlorophyll and hemoglobin, the red coloring matter of the blood. Both have a metallic element in the molecule. By oxidation of chlorophyll one of the products obtained is hematinic acid imide which has also been obtained from hemoglobin. By reduction one of the products is hemopyrrol which is also obtained by reduction of hematoporphyrin, a hemoglobin derivative.

The following table expressed in percentages based on dry material will give an idea of the relative amounts of the two natural chlorophyll components as well as of other pigments present in plants:

	Land plants.	Brown algae. (Fucus.)	Green algae. (Ulva.)
Chlorophyll *a*	0.62	0.16	0.093
Chlorophyll *b*	0.22	0.01	0.066
Carotin	0.055	0.0312	0.014
Xanthophyll	0.093	0.0305	0.036
Fucoxanthin	..	0.059	..

Concerning the physiological relationship of these pigments Willstätter has suggested that since chlorophyll *b* ($C_{55}H_{70}O_6N_4Mg$) contains more oxygen than chlorophyll *a* ($C_{55}H_{72}O_5N_4Mg$), the former compound is produced by the action of chlorophyll *a* upon carbon dioxide during assimilation, and that chlorophyll *b* is then reconverted into chlorophyll *a* with liberation of oxygen. On the other hand, the molecular formulas of carotin ($C_{40}H_{56}$) and xanthophyll ($C_{40}H_{56}O_2$) differ by only two atoms of oxygen, and the close association between the carotinoids and chlorophyll may be explained by assuming that the function of carotin is to reduce chlorophyll *b* to chlorophyll *a*, being itself oxidized to xanthophyll, and that the latter compound is reconverted by some enzyme into carotin with evolution of oxygen.

The chief function of chlorophyll is its activity in photosynthesis. Plants containing chlorophyll make in the light a sugar which is commonly converted into starch, at least in part. The photosynthetic sugar made in green leaves is produced from water drawn from the soil and carbon dioxide derived chiefly from the atmosphere; oxygen is given off during the process. It is stated that one gram of sugar requires 750 cubic centimeters of carbon dioxide (ordinarily contained in about 2 cubic meters of air) and that this is the amount of carbon dioxide used (and oxygen given off) by a square meter of green leaf each hour on a bright summer day. It is this utilization of the carbon dioxide which is produced continually during combustion, decay and respiration throughout the earth, and the liberation of oxygen by the plant, that keeps the carbon dioxide content of the air uniformly low. The air we inhale outdoors contains about 0.04% of carbon dioxide; that which we exhale contains about 4% or 100 times as much; and, of course, the air has, during the respiration, been deprived of an equivalent amount of oxygen of which latter fresh air contains 20.6%. Fortunately for us, the carbon dioxide we exhale, and which is poisonous to us, is used by the plant for photosynthesis, while in the meantime the plant gives off oxygen necessary in our respiration. The respiration of a man is balanced by about 25 square meters of green leaf on an ordinary summer day; but, because the plant does not utilize carbon dioxide during the night, about 60 square meters are required for the 24 hours; and where the plant is active during the summer only, about 150 square meters are needed for the year. Were it not for plants the carbon dioxide content of the air, vast

though the volume of the atmosphere, would ultimately in the course of the centuries become too high and the oxygen content simultaneously too low for animal life.

A study of the mechanism of photosynthesis involves the action of sunlight which is the source of the energy required. Visible light coming to us from the sun is composed of the well-defined colors violet, indigo, blue, green, yellow, orange, red and their intermediate shadings, although certain comparatively negligible portions are missing because of absorption by the gaseous solar envelope and the earth's atmosphere. When the sunlight strikes a body it may be partly or almost entirely transmitted, reflected or absorbed, being almost entirely transmitted by colorless, transparent bodies, almost entirely reflected by white opaque bodies, and almost entirely absorbed by black opaque objects. In the case of colored transparent bodies the light that passes through is the unabsorbed portion; with colored opaque objects the color reflected (which we designate as the color of the object) is the color or blend of colors which has not been absorbed.

On passing sunlight through a solution of chlorophyll in a spectroscope it is found that most of the red and nearly all of the blue, indigo and violet have been absorbed, thus indicating these to be the light constituents useful in photosynthesis which fact may be confirmed by growing plants in red, blue or violet light when starch will be formed, whereas in yellow, orange or green light no starch is produced. The blend of green and less pronounced yellow which constitutes the color of vegetation is simply that portion of the sunlight which has not been absorbed because useless in photosynthesis; the orange and unabsorbed blue, being complementary, have formed white light as have also a little of the red and green-blue. If, instead of red and blue, the red and green had been the useful colors, vegetation would appear blue; if green and blue were the useful kinds, plants would be red.

In the case of seaweeds growing at different depths, the rays of light which are most effective in photosynthesis are invariably those which are complementary to the coloration of the respective plants, the reason being that it is, of course, precisely these complementary rays that are absorbed by the pigments concerned. Passage of light through the water robs it of some of its vibrations so that even at comparatively slight depths below the surface of the ocean green and blue-green light predominate; under such circumstances the pigments are undoubtedly adapted to this altered light as in the beautiful rose-red "sea mosses." It has been found that prolonged exposure of certain species of *Oscillatoria* to colored lights causes a change in color, the alteration always being a closer approximation to the tint which is complementary to that of the light employed. In red light, for instance, the plants assume a green, in green light a red, and in blue light a brownish yellow hue.

The chemistry involved in photosynthesis is still the subject of fragmentary and conflicting hypotheses. Even the question of what sugar is first produced is still unsettled. Sucrose and its hydrolytic products, dextrose and levulose, are the sugars commonly found in the sugar-producing leaves such as those of *Saccharum officinarum;* for starch-producing plants the assumption is that dextrose is the primary product, it being formed according to the generalized equation: $6H_2O + 6CO_2 = C_6H_{12}O_6 + 6O_2$.

Carbohydrate formation in the leaf occurs very rapidly in sunlight, less rapidly

in diffused daylight, and is non-existent in darkness. The average production is conventionally stated to be 1 gram of dextrose per square meter of green leaf per hour in the summer. In the process carbon dioxide contained in the air finds entry through the stomata of the leaves and moves along the air passages, whence it passes in solution into the cells and the chloroplasts, the necessary water being supplied by the ducts which have brought it up from the roots. In some manner still awaiting definite knowledge the chlorophyll of the chloroplasts, energized by the absorbed light vibrations, reacts with the carbon dioxide and water, forming a sugar. More of the sugar is produced in the palisade cells near the upper surface of the leaf where most of the chlorophyll is located; a lesser amount is formed in the spongy parenchyma cells lying between the palisade cells and the epidermis of the under surface of the leaf. In accordance with the well-known law in vegetable physiology that a metabolic process can be carried on continuously only so long as the products are promptly removed, it is readily seen that in order that the production of the sugar may go on continuously its removal is necessary either by transportation to other tissues or by conversion into the insoluble starch or glucosides, otherwise the process slows down by closure of the stomata to retard the ingress of carbon dioxide. In some leaves the facilities for removal are very good, special collecting cells being present beneath the palisade cells into each of which a number of the palisade cells may empty their product; from the collecting cells the sugar solution passes through one or more spongy parenchyma cells or directly through the endodermis of the wood bundle into the veins, thence into the midrib and through the petiole into the twig, branch and stem, continuing its progress until it arrives in the plant part where it is to be used or stored as sugar or starch, the amyloplasts accomplishing its conversion into starch, as in the tuber of the potato, or the seeds of plants, etc.

We have just mentioned that in some plants the facilities for rapid transportation are excellent and the sugar is conducted away about as fast as it is formed, in which case we are not apt to find starch in the leaf. In others, part of the sugar is converted temporarily in the leaf into starch, thus removing it from solution and leaving the way open for the continuance of sugar production. This conversion into starch is especially apt to occur on very bright days when sugar is formed so rapidly that only part of it can be translocated to other plant parts during the day. However, during the night, when carbohydrate production has stopped because of absence of light, a diastatic enzyme converts the insoluble, untransportable starch into the soluble and therefore transportable sugar, this occurring first in the most highly specialized photosynthetic cells (palisade cells) and progressively in the others, the sugar solution being then slowly transported away to leave the field clear for operation the next day.

In some plants the sugar which cannot be transported away during the day is converted into glucosides thus lowering the sugar concentration. Some of these glucosides, like salicin, are acted upon by an enzyme during the night and split into the sugar, which is then transported away, and some other substance (saligenin in the case of salicin) which can recombine with sugar the next day. They also act as reserve food material by furnishing their sugar content for new plant growth in spring.

Photosynthesis in green leaves in summer is on an average about twelve times

as active as respiration. It must be remembered that plants respire in their normal metabolism as do animals (although it is not active breathing), taking in oxygen and giving off carbon dioxide, day and night, and it is only during the day (in light) that carbon dioxide is used in photosynthesis, the latter process overshadowing by far the respiratory activity. At night any carbon dioxide given off in respiration passes out through the stomata; during the day any carbon dioxide given off is absorbed and a constant additional supply (in air) comes in through the stomata, while simultaneously a part of the oxygen given off by the chloroplasts as a by-product of photosynthesis is absorbed by the protoplasm of the same cells for their respiration, the excess passing out through the stomata. Since the activity of photosynthesis declines with decrease of light intensity it is evident that in the early morning near sunrise, in the evening after sunset, and on gloomy days, there is a state of balance where photosynthesis is not twelve times as active, but instead is just about equally as active as respiration, and the carbon dioxide of respiration is all that is required for the carbohydrate production possible in such poor light, the oxygen given off in photosynthesis thus being sufficient for respiration—a case of reciprocity. Such a state of balance accounts for the fact that sweat plants, partridge berries, etc., may be kept for a long time under closed globes in the moderate dark of a room.

A popular belief is to the effect that it is unsafe to have plants in the bedroom at night. Thousands of people camp in the woods during the summer and although surrounded at night by respiring vegetation above, below and on all sides, they experience no ill effects due to carbon dioxide poisoning. A square meter of leaf releases in respiration only about the $^1/_{300}$th part of the carbon dioxide exhaled in the same time by a person and although buds and roots respire more freely, a whole windowful of plants gives off during the night only a very small fractional part of the amount produced by one person.

THE CAROTINOIDS.

The carotinoids, as has been previously mentioned, are yellow, orange or red pigments which are insoluble in the cell sap and appear in the chloroplasts with chlorophyll or in the chromoplasts. They are quite universally distributed, being found not only in the plant world but, by derivation, also in the animal kingdom. Usually several carotinoids may be found together in the same plant, as, for instance, both carotin and xanthophyll are present in the green algae, in celandine poppy (*Chelidonium majus*), the daffodil (*Narcissus pseudo-narcissus*), common dandelion (*Taraxacum officinale*), and numerous other flowers; lycopin, carotin and xanthophyll are present in the flesh of the watermelon.

Carotin, $C_{40}H_{56}$, is a colored hydrocarbon found widely distributed, occurring not only associated with chlorophyll in the chloroplasts, but also in amorphous or crystalline forms in various parts of many plants. Chiefly to it is due the color of yellow and orange pollen and of various seeds, and it constitutes partly or entirely the yellow or orange color of many fruits and of most yellow to orange-red flowers such as the poet's narcissus (*Narcissus poeticus* L.), cowslip (*Primula officinalis*), asphodel (*Asphodelus cerasifer*), tulip tree blossom (*Liriodendron tulipifera*), and many others. In the buttercup it occurs dissolved in the cells in an oil instead of being present in plastids and in the carrot root, from which it was first isolated,

it is present as innumerable small crystals. It is the principal pigment in diatoms and in *B. egregrium* and *Spaerotilus roseus*.

Lycopin is a red isomer of carotin and constitutes the characteristic red pigment of tomatoes (which also contain a little carotin), red peppers, the pulp of watermelons (which also contain carotin and xanthophyll) and a number of tropical fruits. An interesting observation is the fact that above 30° C. green tomato fruits do not form lycopin but only carotin (possibly xanthophylls also), producing a yellow fruit, but the induced yellow fruits form lycopin if the temperature is reduced to the usual ripening temperature (20–25° C.).

Xanthophylls, $C_{40}H_{56}O_2$, are apparently a group of isomorphous or isomeric (?), still very imperfectly differentiated coloring matters not so reddish as carotin. They occur in many flowers usually associated with more or less carotin and have been found in the wallflower (*Cheiranthus cheira*), sunflower (*Helianthus annuus*), orange hawkweed (*Hieraceum aurantiacum*), nasturtium (*Tropaeolum majus*), common garden tulip (*Tulipa Gesneriana*), coltsfoot (*Tussilago Farfara*), mullein (*Verbascum* species), pansy (*Viola tricolor*), marigold (*Calendula officinalis* and *C. arvensis*), and others. They are a common associate of chlorophyll and it seems that probably not more than four are present in the chloroplasts of green leaves. They are closely related to carotin and the assumption is that in the plant there is an interchangeability with the latter as has already been mentioned under chlorophyll; in fact, in the laboratory xanthophyll has been converted into carotin by the action of zinc dust and water. In green leaves the presence of carotin and xanthophylls is masked by the preponderance of chlorophyll, although in some leaves they are sufficiently pronounced to give the leaves a yellowish cast. Chlorophyll is bleached more readily in light than are the yellow pigments, and in autumn when the plant ceases to produce chlorophyll this latter soon disappears and the yellow of the carotin, xanthophylls and possibly other yellow pigments, which has been hidden till then, persists, thus being one of the factors in the beauty of autumn leaves.

Rhodoxanthin is a red isomer of the xanthophylls occurring in the Russian pond weed, *Potamogeton natans;* in the arillus of the seed of the yew, *Taxus baccata;* and constituting the winter red color of the arbor vitae, *Thuja orientalis.*

Fucoxanthin, $C_{40}H_{54}O_6$, is an algae carotinoid furnishing the olive-brown tint in fresh brown seaweeds which also contain carotin and xanthophyll.

In addition to the above-mentioned occurrences carotinoids have been found in the blue-green algae, in rusts, and in some mushrooms. Although occurring in the orange, none has been found in the lemon. They occur in seeds yielding yellow oils on expression such as flax, mustard, sesame and cotton seeds which last contains a mixture of carotin and xanthophyll. Of course, the expressed oils are tinctured by the same pigments. Cereal grains also contain them and the coloring of yellow Indian corn, *Zea Mays*, is almost entirely xanthophyll with a little carotin; wheat also contains both carotin and xanthophyll.

It may not be amiss here to mention some carotinoid occurrences in animals. The carotinoids are, of course, derived from the plant food. Carotinoid pigmentation of animal tissues or fluids is not, however, universal even among animals whose diet is normally rich in these pigments. The carotinoids of adipose tissue, internal organs, nerve cells, and skin of mammals are those which characterize the

blood serum (plasma), only those animals whose blood serum (plasma) is normally pigmented with carotinoids depositing the pigments in their body tissues and organs.

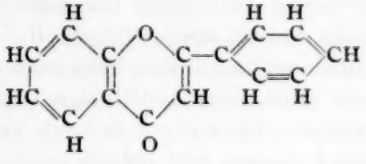
No or almost no carotinoid is present in the serum of swine, sheep, goats, dogs, cats, guinea pigs and rats, nor is any to be found in new-born animals. Cattle and horse serums contain carotin primarily; human serum is colored by carotin or xanthophyll or both; fowl serum contains xanthophyll chiefly. As a consequence we find the corpus luteum, the butter-fat and the adipose tissue of cattle to be colored by carotin, and the egg yolks and adipose tissue of fowl to be colored by xanthophyll with practically none of the other coloring present in either case, and it is possible by proper choice of carotin-rich or xanthophyll-rich rations, respectively, to intensify the colorations. A plentiful diet of carrots, oranges or eggs may tint the skin especially of children and the frequent yellow color of non-jaundiced, dieting diabetics is no doubt due to their plentiful vegetable diet. Young or moulting canary birds are fed with a mixture of red pepper (containing lycopin), egg yolk (containing xanthophyll) and bread to tint their feathers deep yellow or reddish.

Carotinoids are undoubtedly the cause of the yellow to red color of the feathers of certain birds, the yellow color of fishes, the yellow pigment of the skin, adipose tissue and retina of frogs, toads and salamanders; they are present in the larvae and pupae of butterflies, in bugs, beetles, locusts, crustaceae, echinoderms, marine and fresh water worms, and in sponges.

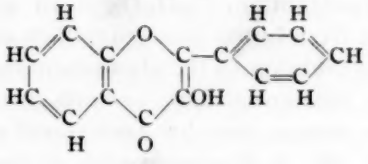
THE ANTHOXANTHINS.

The term anthoxanthin is a group name for a number of yellow-colored flavone (or flavonol) and xanthone derivatives which occur sometimes uncombined but usually in combination with dextrose or rhamnose or both as glucosides and frequently are associated with tannins. They are found in the vegetative organs and flowers of many plants and constitute the yellow coloring of many woods, roots, barks, buds and berries. They are mostly yellow crystalline solids, slightly soluble in water, readily soluble in acids and alkalies, forming yellow to red solutions. Some of the flavones are almost colorless in neutral or acid solutions, but

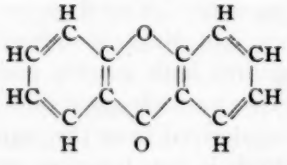
Flavone



Flavonol



Xanthone



intensely yellow in alkaline solutions. Chemically the flavones are closely related to the anthocyanins and in the plant the red anthocyanins of spring leaves change

to the colorless or yellow flavones of the summer period hidden by chlorophyll and in autumn are reconverted to the red anthocyanins of red autumn foliage.

Because of their use as dyes the plants containing anthoxanthins have for many years been the subject of investigation and the molecular structure of many of the constituent coloring matters has been determined. The mother substances of which they are derivatives have the foregoing formulas.

Among the derivatives of flavone and flavonol are:

Chrysin (a dihydroxy-flavone), found in the leaf buds of several varieties of poplar, such as *Populus nigra, P. pyramidalis, P. deltoides.*

Apigenin (a trihydroxy-flavone), found as the glucoside **apiin** in parsley leaves, stems and seeds.

Acacetin (apigenin monomethyl ether), from the leaves of *Robinia Pseudo-Acacia,* our common locust tree.

Lotoflavin (probably a tetrahydroxy-flavone), found as the glucoside **lotusin** in *Lotus arabicus.*

Luteolin (a tetrahydroxy-flavone), from *Reseda Luteola* (weld, the oldest European dyestuff known; used by the Gauls, etc., in Caesar's time) and *Genista tinctoria* (dyer's broom).

Galangin (a dihydroxy-flavonol), from galanga root.

Fisetin (a trihydroxy-flavonol), found free and as a glucosidal tannin compound in the wood of *Cotinus Coggygria* (young fustic).

Kaempferol (another isomeric trihydroxy-flavonol), in *Delphinium consolida, Rhamnus cathartica* berries, etc., and as the gluco-dirhamnoside **robinin** in the flowers of *Robinia Pseudo-Acacia* and of the white azalea.

Quercetin (a tetrahydroxy-flavonol), occurring either uncombined or as the rhamnoside **quercitrin** in onion skins, tea leaves, horse-chestnut blossoms, apple tree bark, red, crimson and white clover flowers, heather, common fuchsia blossoms, yellow wall flowers, quercitron bark, and many others.

Violaquercitrin, from *Viola Rafinesquii;* **Osyritin,** from *Colpoon compressum;* **Myrticolorin,** from *Eucalyptus macrorhyncha;* and **Rutin,** from *Ruta graveolens, Capparis spinosa,* and *Fagopyrum esculentum,* are one and the same compound being a quercetin gluco-rhamnoside.

Rhamnetin (quercetin monomethyl ether), occurs as the dirhamno-galactoside **xanthorhamnin** in the dried berries of *Rhamnus cathartica, R. tinctoria,* etc.

Isorhamnetin (an isomer of rhamnetin), from *Delphinium Zalil,* the common garden wall flower and red clover flowers.

Rhamnazin (quercetin dimethyl ether), from the berries of *Rhamnus infectoria.*

Morin (an isomer of quercetin), from the wood of *Morus tinctoria* (old fustic), where it is accompanied by another coloring matter (**maclurin**).

Myricetin (a pentahydroxy-flavonol), occurs free and as the rhamnoside **myricitrin;** it is found in the bark of *Myrica nagi* and in *Myrica Gale,* and in the leaves of *Cotinus Coggygria, Rhus Coriaria, Rhus Metopium, Haematoxylon campechianum,* and in *Pistacia Lentiscus* and *Coriaria myrtifolia.*

The yellow colors derived from xanthone include:

Gentisin, from the root of *Gentiana lutea.*

Datiscetin occurring as the rhamnoside **datiscin** in *Datisca cannabina.*

(To be continued.)

NATIONAL DRUG STOCKHOLDERS DENIED STORE SALE INJUNCTION.

The petition of Ralph B. Wattley, former President of the National Drug Stores Corporation, and other stockholders for an injunction restraining the company from selling its retail store at Broadway and 42nd St., New York City, to Louis K. Liggett Co., has been denied by Justice Wagner in the Supreme Court of New York City. Justice Wagner held that the sale of a store was not sale of assets within the Delaware construction of the charter but was a sale of the ordinary course of business as authorized by the certificate of incorporation.

THE STANDARDIZATION AND ACTION OF LOCAL ANESTHETICS.*

BY H. A. McGUIGAN.

How shall we evaluate an unknown anesthetic in terms of cocaine?

This necessitates a résumé of the biological methods of determining the value of an anesthetic. Before such methods are applicable the drug must be known to be available as a local anesthetic, *i. e.*, it must be devoid of certain properties: it must be non-corrosive and relatively non-toxic. Phenol, ammonia, and many other drugs, when injected hypodermically, produce anesthesia; but the preliminary pain and corrosive action is sufficient to eliminate them from consideration. Such drugs have been called anesthetica dolorosa.

The methods used by pharmacologists to determine the value of local anesthetics are:

I. The anesthetization of the conjunctiva of the rabbit's eye. This is carried out by dropping a solution of the drug into the conjunctival sac and determining the time of onset, and the duration of the anesthesia produced. The condition of anesthesia is determined by touching the cornea with a bristle or other suitable instrument. When anesthetized, no winking results, and no pain is elicited when the conjunctiva is irritated.

II. Anesthetization by dipping the foot of a frog into a solution of the anesthetic, and determining when it is anesthetized by dipping it in an acid solution. When anesthesia is induced the foot is not withdrawn from the acid solution. If it is withdrawn, the acid is washed off by dipping the foot in water and again immersing in the anesthetic solution until anesthesia is produced. Such a condition is determined by the absence of reflex when again immersed in acid. The well-known Türck method is used in this procedure.

III. Anesthesia is also determined by applying the drug to the sciatic nerve of a frog, and noting when the impulse or after-stimulation fails to elicit a contraction of the muscle. This is a motor nerve, but its use in the study of anesthesia is sanctioned by the accepted physiological law that every nerve impulse is similar to every other nerve impulse. The motor impulse is harder to block than the sensory, but in comparative work when the same nerve is used, this makes no difference.

IV. The quaddel or wheal method by injection intradermally in the skin of man, stimulating the area with a pin, hot iron or the like, and noting when the sensation disappears and returns.

V. A modification of this has been used on dogs by Pittenger. He shaves an area of the skin about one inch square, and injects one cubic centimeter of a solution of the drug into this area, and determines the minimum weight of the drug which is necessary to be dissolved in 1 cc. to cause anesthesia in five minutes. With procaine he found this method sufficiently delicate to detect differences of seven per cent. of the required amount, which was 0.07 gram per cc.

VI. Another method which has been used by Drs. Burnett and Jenkins, working under Dr. Adams at the University of Illinois, is the Gold Fish Method. They find that by putting gold fish into a solution of an anesthetic, they turn over when anesthetized in a manner resembling death. However, since they rapidly

* Read before the Unofficial Conference of U. S. P. and N. F. Revision workers at Chicago, January 12, 1924.

recover when replaced in water, they consider the condition as one of anesthesia. By plotting the effects of various concentrations on X axis, and the reciprocal of the time on the Y axis, they get the formula:

$$A = \sqrt{\frac{\tan.\theta}{\alpha}}$$

which corresponds to the strength of the anesthetic.

A = anesthetic effect.

α = the subliminal concentrations of the drug.

θ = the angle formed with the axis X by protecting to the X axis the straight line formed by the points of different concentrations.

We were interested in comparing the results of the various methods, and in comparing procaine and some other related synthetic preparations with cocaine. The results are interesting:

FOR PROCAINE IN TERMS OF COCAINE.

Rabbit's eye.	Frog's sciatic.	Pittenger's method.	Türck method.
3/16	1/6	1/11	0

The results show that when, as the result of a biological method, we state that a drug is equivalent to a certain concentration of cocaine, it is important to state the method used. The cocaine equivalent differs apparently for both method and location.

DISCUSSION.

E. L. NEWCOMB inquired if the work had been done entirely with 100% pure anesthetic or if any comparative work had been done with crude drugs containing these anesthetics.

DR. MCGUIGAN replied that the work had been entirely with the pure anesthetic.

THE EFFECT OF INJECTION, INTO RATS, OF IMPROPERLY ALKALINIZED SOLUTIONS OF SALVARSAN.*

BY H. B. CORBITT AND C. N. MYERS.

The object of this demonstration was to show the effect of adding sufficient and insufficient amounts of alkali in the alkalinization of a solution of salvarsan or other arsphenamines. Three rats were injected with 200 mg. per Kg. of salvarsan, according to the official procedure, as follows, with the results indicated.

Rat No. 1 received the unalkalinized salvarsan solution (salvarsan hydrochloride in 2 per cent. dilution). This animal died on the board.

Rat No. 2 received a partially alkalinized salvarsan solution (sufficient alkali to form, theoretically, the mono-sodium salt in solution). This animal died within fifteen minutes.

Rat No. 3 received a completely alkalinized salvarsan solution (sufficient alkali to form, theoretically, the di-sodium salt in solution). This animal lived to be chloroformed at the end of the demonstration.

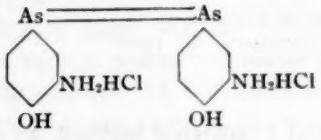
* Demonstration at the "Stunt Show" of the Scientific Section, A. PH. A., Asheville meeting, 1923.

One of us (M.) has shown elsewhere that protein-salvarsan compounds are formed in the blood upon the injection of salvarsan or other arsphenamines. The size and solubility of these aggregates are directly related to the hydrogen-ion concentration of the salvarsan solution. An acid solution results in the formation of large insoluble particles, whereas in an alkaline solution, the state of dispersion is such that the particles readily pass through the capillaries and are eventually absorbed. The above experiment showed clearly the relative toxicity of acid, mono-sodium, and di-sodium salt solutions at this concentration (2 per cent. solution).

The accompanying chart shows the theoretical chemical transformation of Salvarsan on the addition of given amounts of sodium hydroxide.

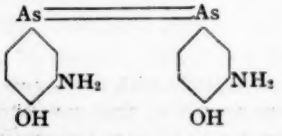
CHART SHOWING THEORETICAL CHEMICAL TRANSFORMATION OF SALVARSAN INTO THE DI-SODIUM SALT REQUIRED FOR INTRAVENOUS INJECTION.

I—Salvarsan.



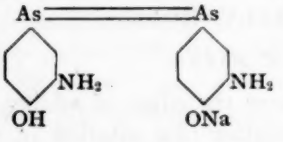
Salvarsan as it appears on market.

II—Salvarsan Base.

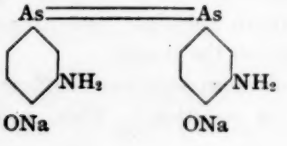


Sodium Chloride NaCl is formed at this stage of alkalinization.

III—Mono-sodium Salt of Salvarsan.



IV—Di-sodium Salt of Salvarsan.



I.

Salvarsan di-hydrochloride.
Yellow powder about 31.50 per cent. arsenic.
Soluble in cold water.
Acid to litmus.
Solution not suitable for intravenous administration.

II.

Salvarsan base.
Precipitated upon addition of 12 drops of 15 per cent. sodium hydroxide solution or 2.52 cc. of normal sodium hydroxide solution per 0.6 gram salvarsan. Insoluble yellow precipitate. Causes reactions.
Not suitable for intravenous administration.

III.

Mono-sodium salt of salvarsan.
Formed upon addition of 18 drops of 15 per cent. sodium hydroxide solution or 3.78 cc. normal sodium hydroxide solution. Just soluble in water. Clear yellow solution. Slightly alkaline to litmus. *Not* suitable for intravenous administration.

IV.

Di-sodium salt of salvarsan. Formed upon addition of 24 drops of 15 per cent. sodium hydroxide solution of 5.04 cc. normal sodium hydroxide solution. Completely soluble in water. Clear yellow solution. Ready for intravenous administration, in dilution of 0.1 gram in 30 cc. of freshly distilled water. This is the *only* form in which salvarsan or other arsphenamines should be used.

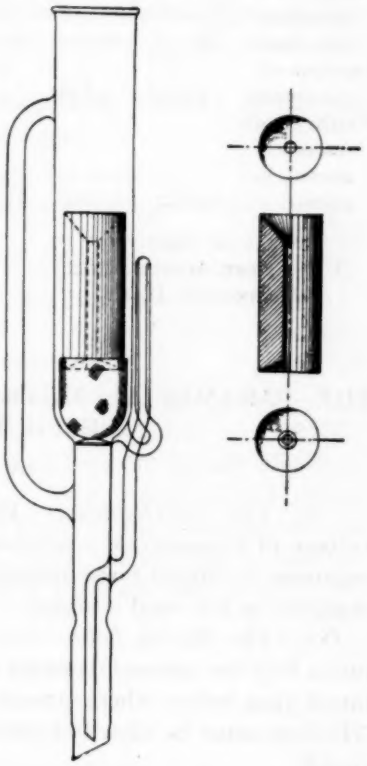
RESEARCH DIVISION,
H. A. METZ LABORATORIES,
NEW YORK CITY.

A SIMPLE DEVICE FOR ADJUSTING THE SIPHONING COLUMN OF THE SOXHLET EXTRACTION APPARATUS.*

BY SAMUEL PALKIN.

In view of the numerous changes and improvements that have been offered from time to time for the Soxhlet extraction apparatus, it is indeed surprising that the very simple means described below for making a Soxhlet apparatus of any given size adjustable for smaller quantities of material has, to the author's knowledge, never been suggested.

The device consists of a cylindrical plug with a funnel top and a conical bottom, and contains a hole in the center. After the thimble has been cut to the necessary size, the plug is placed in the upper (extracting) reservoir of the Soxhlet apparatus.



This plug is made preferably of glass, but could be made of metal (particularly aluminum) if no reagents which might attack the metal are used in the extraction. The form and dimensions of this adjusting plug are shown in the diagram.

The device affords the following advantages:

1. The volume of liquid in the siphoning reservoir is made variable and dependent upon the quantity of material to be extracted, rather than the total capacity of this reservoir (which is constant). This is done by simply cutting the thimble down to the size required (just above the overlying pledget of cotton). The shortened thimble is then made to support the plug, thus making the column of liquid in the upper reservoir but little more than the volume necessary to just cover the smaller thimble and its contents.

2. The frequency of siphoning is greatly increased.

3. The total volume of solvent may be considerably diminished if the quantity of material to be extracted is small, so that a smaller flask may be fitted to the apparatus and direct weighing (without transfer) of the extracted residue is made possible.

4. With some materials the speed of the extraction process may be increased materially.

5. This increase in efficiency is accomplished without abandoning the desirable siphoning principle[1] which differentiates the Soxhlet apparatus from various other types of extractors which employ the principle of percolation.

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* Read before the meeting of the American Pharmaceutical Association at Asheville, N. C., September 3–8, 1923.

[1] Periodic soaking of the material, followed by siphoning of the solvent.

TABLE OF RESULTS.

Substance	Mixture of sand, 90% caffeine, 10%		Mixture of sand, 90% theobromine, 10%		Mixture of corn starch, 90% theobromine, 10%		Mixture of corn starch, 90% morphine, 10%	
Amount used	2 grams		2 grams		2 grams		2 grams	
Extracting solvent	Ether (U. S. P.)		Chlorof. (U. S. P.)		Chlorof. (U. S. P.)		Chlorof. (U. S. P.)	
Indication as to use of device	Without device	With device	Without device	With device	Without device	With device	Without device	With device
Volume of siphoning reservoir	40 cc.	14 cc.	40 cc.	16 cc.	40 cc.	16 cc.	40 cc.	15 cc.
Frequency of siphoning (per hour)	28	80	14	38	24	96		86
Duration of experiment	1/4 hour	1/4 hour	1/2 hour	1/2 hour	1 hour	1 hour	1 hour	1 hour
Weight of substance extracted, in grams	0.0522	0.1152	0.0085	0.0125	0.0140	0.0880	0.0380	0.0420

BUREAU OF CHEMISTRY,
U. S. DEPT. AGRICULTURE,
WASHINGTON, D. C.

THE PARAMECIAL METHOD FOR DETERMINING THE PHENOL COEFFICIENT OF DISINFECTANTS.*

BY ALBERT SCHNEIDER.

1. The Test Organism.—The test organism used is an approximately pure culture of *Paramecium caudatum*. The most suitable culture medium[1] for this organism is filtered horse manure extract in water to which dried bread crumbs, crackers, or fish meal is added.

2. The Mixing Loop.—Use 1 mm. wire, platinum or alloy. Bend one end into a loop the internal diameter of which is exactly 3 mm. and fasten the other end into a glass rod or other convenient holder. The wire should be about 6 cm. long. The loop must be closed or quite nearly so in order that it will hold the liquids readily.

3. Making the Loop Mixtures.—Take up one loopful of the solution to be tested and deposit it upon the middle of a carefully cleaned dry slide. Rinse the loop in running water and dry in a Bunsen flame and allow to cool. Take up one loopful of the paramecial culture and add it to and mix with the drop of the disinfectant upon the slide.

4. Examining the Loop Mixture.—At once place the slide with the loop mixture upon the stage of a compound microscope and examine under the low power

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* Contribution for the "Stunt Show" of the Scientific Section, A. Ph. A., Asheville meeting, 1923.

[1] We shall try the thyroid extract culture medium this year.

(about 90 diameters). If all of the paramecia are killed promptly a higher dilution of the disinfectant must be tried. If the paramecia continue alive for a period of three minutes or longer, a stronger solution must be tried. These trials must be continued until the solution strength is found which will kill all of the paramecia present within *three minutes' time* (but not within one minute of time), at a room temperature of approximately 20° C. This dilution shall be known as the minimal killing dose, indicated by M. K. D.

5. *The Phenol Standard.*—Make a 1 per cent. solution of pure phenol (crystals) in distilled water, and determine the M. K. D. as described under (4). This M. K. D. of phenol shall be the standard of comparison, or the phenol standard, given as 1.

6. *The Phenol Coefficient.*—The phenol coefficient of the compared disinfectant is obtained by dividing its killing dilution by the killing dilution of pure phenol. The killing dilution of pure phenol when used in the manner herein described is 1:500.

7. *Determining the Death of the Test Organism.*—The behavior of the test organism toward the test solutions may be stated as follows:

a. Period of excitation, usually very temporary, followed by,

b. Retardation of motion; slowing and even complete inhibition of the vesicular pulse; then,

c. Slow progressive motion with axial rotation, spinning top motion.

d. Cessation of progressive motion, the cilia still vibrating,

e. Projection of trichocysts, and,

f. Protrusion of vacuoles, which invariably means death.

The test solutions of the disinfectants are to be made with distilled water and the mixing done by vigorous shaking. The presence of large numbers of bacteria in the paramecial culture, and of other contaminants, does not materially affect the reaction of the paramecia toward the test solutions. Cover glasses are not required and all of the observations are made under the low power of the compound microscope. Dilutions of liquid disinfectants are to be made volumetrically, and the initial solution of solid but soluble disinfectants is to be made gravimetrically.

HYPOCHLORITE SOLUTIONS.

BY RUTH M. DAVIS AND H. A. LANGENHAN.

(*Continued from p. 222, March* JOURNAL A. PH. A.)

(NO. 4) PRESERVATION OF HYPOCHLORITE SOLUTIONS.

The alkaline earth hypochlorite solutions are unstable. Their stability may be influenced by the chlorine concentration; by the temperature applied during the preparation and storing of the solution; and by the alkalinity of the finished product.

Faraday was the first to note the importance of the chlorine concentration. He found that by using an excess of chlorine gas a solution was obtained differing from Labarraque's in chemical constituents and reaction. "*Labarraque's Solution* gave off a slight odor of chlorine, on being heated yielded no chlorine, on being

evaporated gave no salt nor chlorate of soda, and practically all of its chlorine was available for disinfectant purposes; while the solution prepared with excess chlorine gave a powerful odor of chlorine, evolved chlorine when heated, on evaporation gave salt and chlorate of soda, and gave very little chlorine for disinfectant use."

The early experimentors on these solutions noted that controlling the alkali concentration of the solution to be treated with chlorine did not necessarily mean controlling the available chlorine concentration of the finished product but that chlorate and chloride appeared depending upon the amount of chlorine added. Thomas (1922) prepared a concentrated solution keeping the products cold during the reaction. This solution deteriorated rapidly. Mellor explains this by saying that as the solution becomes more concentrated there is sometimes a spontaneous transformation of hypochlorite to chlorate, furthermore, an excess of chlorine might act on hypochlorite, at ordinary temperature, liberating hypochlorous acid. Haskins (1898) claims that more concentrated solutions are less stable than the U. S. P. solution, while Griffin and Hedallen (1915) state that this concentration has very little to do with the stability of the solution. Barnet (1917) states that a 5.5% solution showed no deterioration in thirty days when kept in the dark but did show deterioration in the light. Wische (1917) states that a dilute solution lost 10% in two months while a concentrated solution lost 40%. Another writer reported that the hypochlorite solution lost chlorine steadily until it reached a state of equilibrium at about 1.7% available chlorine. Unfortunately none of the writers included any information relative to the degree of alkalinity of the finished product. Hence a logical interpretation of their information is not feasible.

The effect of the alkalinity, of the finished product, on the stability of the available chlorine content, has been commented upon by many. Balard first called attention to the effect of the degree of alkalinity. "The presence of a certain excess of base, prevents the conversion of the hypochlorite into chlorate and chloride, whereas it is rapidly effected when the acid is in excess." Cowley (1906), Brown (1909), Êwe (1920), and Thomas (1922) are only a few of the many who have stated that an increase in the alkalinity of the solution increases the stability since it retards the hydrolysis of the hypochlorite. However, the alkalinity being undesirable, attempts were made to eliminate this factor. Êwe suggested that a non-caustic alkali, such as lime, be used. Dakin and Carrel introduced the solution neutralized with boric acid. Dakin states that a so-called neutral solution of sodium hypochlorite is alkaline due to the production of sodium hydroxide by reaction between water and hypochlorites but nevertheless a solution neutralized with boric acid deteriorated very rapidly.

The other factor of importance influencing the stability of hypochlorite solutions that has been discussed at great length, is the temperature employed during the preparation and storing. Thus the components of the finished product may be influenced by the temperature at which the solution was prepared. The speed of deterioration depends upon the temperature at which it is stored and the temperature at which a solution is evaporated controls the purity of the resulting crystals. Mellor states that the optimum temperature at which a hypochlorite solution should be prepared is 27 degrees C. Above this temperature chlorates and chlorides are formed, proportionately to the degree of heat applied. In storing the solution it is generally required that it be kept in brown glass bottles in a

dark, cool place. Johanneson gives evidence to the wisdom of this rule. He reported that a 0.516% sodium hypochlorite solution lost 0.011% per week when stored in amber colored bottles at 18 degrees C., but only lost 0.006% when stored in a refrigerator at zero degree C.

Most of the work has been done on heating the prepared solution for use in applying to wounds and in attempting to prepare a crystalline hypochlorite. Durand states that no chlorine is lost on boiling the solution. LaWall (1895) tried evaporating the solution on a water-bath and in an air oven, and obtained a large percentage of hypochlorite loss both times. Ewe (1922) warmed a solution to 70 degrees C., reporting a loss of from 0.002% to 0.005% in available chlorine. Mellor states that if an excess of the alkali be present the solution can be dried *in vacuo* at ordinary temperature without much decomposition, may then be crystallized at −10 degrees C. with a resulting product of the following analysis: 37.6% sodium hypochlorite, 3.7% salt, and 58.7% water, and no chlorate. This particular analysis was made upon crystals from a solution prepared by passing chlorine into sodium hydroxide.

Whether the preparation of pure sodium hypochlorite crystals to be dissolved in water for extemporaneous solutions would eliminate some of the problems of decomposition is still to be determined.

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(NO. 5) CHEMISTRY.

Much has been offered on the chemistry of hypochlorite solutions, and a review of the literature leaves one still unsatisfied as to a complete understanding of the subject. Inasmuch as Labarraque's solution is practically the precursor to the more modern hypochlorite solutions, and has been official since 1840, a survey of the reacting ingredients as prescribed in the U. S. P. formulas with a possible theory of the chemistry involved is of interest.

1. *Sodium Carbonate as an Ingredient.*—The revisions of 1840 to 1870 inclusive, each prescribed carbonate of soda, which was described as "colorless crystals." The U. S. Dispensatories of 1843, 1854, 1865, and 1870 each give the formula of sodium carbonate as $Na_2CO_3.12H_2O$. The 1880 and 1890 revisions of the U. S. P.

describe sodium carbonate, the official formula for this being given as $Na_2CO_3.10H_2O$. The revisions of 1900 and 1911, however, direct the use of monohydrated sodium carbonate ($Na_2CO_3H_2O$).

"Twenty-four troy ounces" of the crystalline sodium carbonates were directed to be used in the revisions of 1840–70 inclusive representing eight troy ounces and 422 grains of anhydrous sodium carbonate. "One hundred parts" and "150 grams" of the crystalline sodium carbonate as prescribed by the revisions of 1880 and 1890, represent 37 parts and 55.5 Gm. of anhydrous sodium carbonate, respectively; and 65 Gm. and 70 Gm. of the monohydrated salt prescribed by the 1900 and 1910 revisions, represent 55.51 Gm. and 59.78 Gm. of anhydrous salt, respectively. Summarizing this, we have the following:

1840–70 (incl.)	24 troy oz. cryst.	8 troy oz. 422 grains of anhyd. salt
1880	100 parts	37 parts of anhydrous salt
1890	150 Gm.	55.5 Gm. of anhydrous salt
1900	65 Gm.	55.1 Gm. of anhydrous salt
1910	70 Gm.	59.78 Gm. of anhydrous salt

2. *Chlorinated Lime as an Ingredient.*—"Chlorinated lime" is directed to be used by all of the U. S. P. revisions containing Labarraque's solution. The revisions of 1840–70 inclusive prescribe "12 troy ounces;" the revision of 1880, prescribes 80 parts; that of 1890, 75 grams; that of 1900, 90 grams; and the 1910 revision prescribes 100 grams.

No purity rubric for chlorinated lime is given in the revision of 1840, and none is given in the U. S. Dispensatory of 1843. The revision of 1850–60–70, each state that chlorinated lime shall contain "at least 25% of chlorine." The revision of 1880 states "at least 25% of available chlorine," that of 1890, "at least 35% of available chlorine;" and the last two revisions, *viz.*, 1900 and 1910, require not less than "30% of available chlorine."

The following table indicated the amount of available chlorine in the quantity of chlorinated lime prescribed:

1840*–70 (incl.)	12 troy oz. chlor. lime	3 troy oz. of avail. Cl.
1880	80 parts chlor. lime	20 parts of avail. Cl.
1890	75 grams chlor. lime	26.25 Gm. of avail. Cl.
1900	90 grams chlor. lime	27 Gm. of avail. Cl.
1910	100 grams chlor. lime	30 Gm. of avail. Cl.

* Based on the assumption that the chlorinated lime used in 1840 was of the same strength as that of the three succeeding additions.

3. *Ratio of Ingredients.*—Due to the fact that chlorinated lime is a mixture of several compounds rather than one definite compound; and also that the sodium carbonate added may react, and undoubtedly does react with more than one of the ingredients of the chlorinated lime, the ratio of ingredients, because of the possible interpretation as to the compounds formed, may be computed in several ways, *viz.*:

A. Based on the assumption that chlorinated lime is a compound of calcium chlor-hypochlorite CaOCl.

B. Based on the quantity of available chlorine in chlorinated lime.

According to the National Standard Dispensatory, p. 382, the reaction, in the preparation of chlorinated lime from slaked lime and chlorine, is as follows:

$$2Ca(OH)_2 + 4Cl = Ca(ClO)_2 + CaCl_2 + 2H_2O$$

This reaction is based upon that between potassium hydroxide and chlorine, *viz.*:

$$2KOH + 2Cl = KClO + KCl + H_2O$$

However, it was found that chlorinated lime upon treatment with alcohol did not yield calcium chloride. Likewise it was noticed that chlorinated lime was not hygroscopic to the degree expected of a mixture containing calcium chloride. Hence it was concluded that the dry chlorinated lime consisted of mixed compound, *viz.*, $CaOCl_2$ or $Ca\begin{smallmatrix}OCl\\Cl\end{smallmatrix}$. It is apparent that two molecules of this are equivalent to $Ca(ClO)_2 + CaCl_2$. When chlorinated lime is treated with water, it is found to decompose, and, it is assumed into $Ca(ClO)_2$ and $CaCl_2$.

Erdman ("Anorg. Chem.") states that the following compounds are present:

$Ca\begin{smallmatrix}OCl\\Cl\end{smallmatrix}$; $Ca\begin{smallmatrix}OH\\OCl\end{smallmatrix}$; $Ca\begin{smallmatrix}OCl\\OCl\end{smallmatrix}$; $Ca\begin{smallmatrix}Cl\\Cl\end{smallmatrix}$;

and sometimes, but not always,

$$Ca\begin{smallmatrix}Cl\\O\\CaOH\end{smallmatrix}$$

Schorloemer, Lunge and others (N. S. D., p. 382) have shown that after exhausting chlorinated lime with a little water, the resulting solution contains calcium and chlorine uniformly in the proportion required by the formula $CaOCl_2$. Upon treatment with acids the following reactions take place;

$$1 \quad \begin{cases} Ca(ClO)_2 + H_2SO_4 = CaSO_4 + 2HClO \\ CaCl_2 + H_2SO_4 = CaSO_4 + 2HCl \end{cases}$$

$$2 \quad 2HCl + 2HClO = 2H_2O + 4Cl$$

If there is a larger percentage of $CaCl_2$ present than is represented by $[Ca(ClO)_2 + CaCl_2]$ or $2CaOCl_2$, its chlorine will not be liberated, and therefore is not available chlorine. Hence, it follows that the amount of $Ca\begin{smallmatrix}OCl,\\Cl\end{smallmatrix}$ or $CaOCl_2$ may be computed from the percentage of available chlorine in the chlorinated lime.

Based on the requirement for available chlorine, the amounts of the compound $Ca\begin{smallmatrix}OCl\\Cl\end{smallmatrix}$ present in the pharmacopœial quantities of chlorinated lime used would be as follows:

1840–70 (incl.)	188 Gm. $CaOCl_2$
1880	40.3 parts $CaOCl_2$
1890	52.9 Gm. $CaOCl_2$
1900	54.4 Gm. $CaOCl_2$
1910	60.4 Gm. $CaOCl_2$

The quantities of anhydrous sodium carbonate representing the prescribed amounts of crystalline or monohydrated sodium carbonate used are as follows:

1840–70 (incl.)	276.2 Gm. anhyd. Na_2Co_3
1880	37 parts anhyd. Na_2Co_3
1890	55.5 Gm. anhyd. Na_2Co_3
1900	55.51 Gm. anhyd. Na_2Co_3
1910	59.78 Gm. anhyd. Na_2Co_3

Hence the ratio of chlor-hypochlorite to anhydrous sodium carbonate is as follows:

	Chlor-hypochlorite : anhydrous sodium carbonate.
1840–70	188 : 276.2
1880	40.3 : 37
1890	52.9 : 55.5
1900	54.4 : 55.51
1910	60.4 : 59.78

In the preparation of chlorinated soda solution, Sadtler and Trimble (Med. Chem.) state that the following reactions take place;

$$2CaOCl_2 + H_2O = Ca(OCl)_2 + CaCl_2 + H_2O$$
$$Ca(OCl)_2 + CaCl_2 + 2Na_2CO_3 = 2NaClO + 2NaCl + 2CaCO_3$$

The computed weights of $CaOCl_2$ represented by the quantities of chlorinated lime prescribed by the U. S. P. and the weights of anhydrous sodium carbonate required in each case to complete the reaction are as follows:

	$CaOCl_2$.	Anhyd. Na_2CO_3.	Excess, Na_2CO_3.
1840–70 (incl.)	188 Gm.	163.1 Gm.	113.1 Gm.
1880	40.3 parts	34.9 parts	2.1 parts
1890	52.9 Gm.	45.0 Gm.	9.6 Gm.
1900	54.4 Gm.	47.2 Gm.	8.3 Gm.
1910	60.4 Gm.	52.4 Gm.	7.38 Gm.

A comparison of this table of the theoretical ratios with the above table of the ratios actually employed, shows that in every case an excess of sodium carbonate is employed. This accounts, in part at least, for the alkalinity of the solution.

4. *Solution of Sodium Carbonate.*—It is well known that when sodium carbonate is dissolved in water, the resulting solution does not contain sodium carbonate as such; but the products of hydrolysis. (Treadwell, "Anal. Chem.") The hydrolysis can be indicated by the following reaction:

$$Na_2CO_3 + H_2O = NaOH + NaHCO_3$$

Furthermore, heating the solution tends to decompose the bicarbonate forming carbonate, carbon dioxide and water;

$$2NaHCO_3 + Heat = Na_2CO_3 + H_2O + CO_2$$

Inasmuch as hot water is used to effect the solution of sodium carbonate, the above reaction takes place to a certain degree. Hence it may be assumed that the solution prepared according to the U. S. P. directions contains:

Na_2CO_3, NaOH, $NaHCO_3$ besides trace of CO_2. The latter may be considered negligible.

5. *Solution of Chlorinated Lime.*—Chlorinated lime is prepared by passing chlorine over dry freshly slaked lime. The exact chemical composition of the resulting compound is a matter of uncertainty. It is known that only part of it is soluble in water.

Sadtler and Coblentz (Pharm. Chem.) give the following reaction for the preparation of chlorinated lime:

$$(1)\quad Ca(OH)_2 + Cl_2 = Ca(OCl)_2 + H_2O;$$

upon dissolving the finished product in water, the following takes place:

$$(2)\quad 2Ca(OCl)_2 + H_2O = CaCl_2 + Ca(ClO)_2 + H_2O$$

Roscoe and Schorlemmer give the following reaction for the preparation and the subsequent solution in water:

$$(1)\quad 3Ca(OH) + 2Cl_2 = 2CaOHOCl + CaCl_2 + 2H_2O$$
$$(2)\quad 2CaOHOCl + H_2O = Ca(OH)_2 + Ca(OCl)_2$$

In either case the substances assumed to be in solution are calcium hypochlorite, calcium chloride and undoubtedly traces of calcium hydroxide. Hence, upon mixing the solution of sodium carbonate with the "solution" of chlorinated lime the following are some of the possibilities that may result:

1. $Ca(OCl)_2 + 2NaOH = 2NaOCl + Ca(OH)_2$
2. $Ca(OCl)_2 + Na_2CO_3 = 2NaOCl + CaCO_3$
3. $Ca(OCl)_2 + 2NaHCO_3 = 2NaOCl + Ca(HCO_3)_2$
4. $CaCl_2 + 2NaOH = 2NaCl + Ca(OH)$
5. $CaCl_2 + Na_2CO_3 = 2NaCl + CaCO_3$
6. $CaCl_2 + 2NaHCO_3 = 2NaCl + Ca(HCO_3)_2$

Inasmuch as the insoluble calcium salts would be removed by filtration, the possible compounds in solution would be NaOCl; $Ca(HCO_3)_2$; NaCl; traces of $Ca(OH)_2$ besides any excess of NaOH; Na_2CO_3 and $NaHCO_3$ that may have been used. Kavanagh claims that "oxychloride of sodium" and bicarbonate of sodium are found in this solution and not the hypochlorite and chloride of sodium. (*Am. J. Ph.*, 17, p. 226.)

LABORATORY EXPERIMENTS.

In Berthollet's original bleaching fluid the available chlorine content was the factor of prime importance. Later on as this, and especially *Labarraque's Solution*, became popular as an antiseptic and disinfectant the alkalinity of the product became an important factor because it was undesirable. With the development of the weak hypochlorite solutions for medical use the presence of other constituents called for comment as influencing the therapeutics of the solution. The principal one was the calcium salt, although a manganese salt was reported present at one time and its irritating effect on the tissues noted.

In concordance with the development of the requirements, and because of the feasibility of the order of additional requirements from the viewpoint of assay, laboratory investigations were conducted, first, on permanency of the available chlorine, second, on the degree of alkalinity; and, third, on the preparation of solutions in which an alkaline sodium salt was used, a neutral sodium salt, and a mixture of an alkaline and acid sodium salt, with subsequent determinations of hypochlorite, chlorite, chloride and alkalinity.

(1ST) AVAILABLE CHLORINE CONTENT.

Hypochlorite solution of zinc, lead, aluminum, magnesia, and sodium were prepared according to the U. S. P. process substituting in each case an equivalent amount of salt to react with the prescribed amount of chlorinated lime as follows:—to 100 Gm. of chlorinated lime (available Cl. 22%), 70 Gm. Sodium Carbonate, monohydrated, 112.7 Gm. Zinc Sulphate, 76 Gm. Magnesium Sulphate, respec-

tively, were added. To 150 Gm. of chlorinated lime 100 Gm. of Aluminum Sulphate was added and a 152.7 Gm. of chlorinated lime to 72.8 Gm. magnesium sulphate formed a second ratio. Basic lead acetate as well as other soluble metallic salts were used but the products were discarded as unsatisfactory for the time being. Determinations for available chlorine were made according to the U. S. P. method when the product was first prepared (November) and in January and May.

The following table presents a summary of the results:

TABLE I.

No. 1.		No. 4.	
Chlorinated lime	100 Gm.	Chlorinated lime	152.7 Gm.
Sodium carbonate	70 Gm.	Magnesium sulphate	72.8 Gm.
No. 2.		No. 5.	
Chlorinated lime	100 Gm.	Chlorinated lime	100 Gm.
Sodium carbonate	70 Gm.	Magnesium sulphate	76 Gm.
No. 3.		No. 6.	
Chlorinated lime	100 Gm.	Chlorinated lime	150 Gm.
Zinc sulphate	112.7 Gm.	Aluminum sulphate	100 Gm.

TABLE II.—AVAILABLE CHLORINE.

Solution.	Nov.	Jan.	May.	Alk. $N/10$ acid—1 cc.
No. 1	2.2	2.26	2.24	10.9
No. 2	0.73	0.73	0.12	10.6
No. 3	0.2	0.03	0	Neutral
No. 4	1.5	1.50	0.03	Neutral
No. 5	2.3	2.32	1.50	5
No. 6	0.18	0	0	15.5 (alk.)

(2ND) DEGREE OF ALKALINITY.

The alkalinity was determined according to Wesener and Teller's method, *viz.:*

To 2 cc. of the solution of sodium hypochlorite add 10 cc. of 10 per cent. potassium iodide solution and 25 cc. $N/10$ hydrochloric acid. To this add $N/10$ sodium thiosulphate until the brown color just disappears. Then titrate the excess acid with $N/10$ sodium hydroxide and report alkalinity in 1 cc.

The results were as follows:

Solution.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
Degree of Alkalinity $N/10$ Acid 1 cc.	10.9	10.6	Neutral	Neutral	5	15.5 $N/10$ alk.

(3RD) COMPARABLE SODIUM HYPOCHLORITE SOLUTIONS.

Sodium hypochlorite solutions were prepared using (1) sodium carbonate, (2) sodium sulphate (3) mixture of sodium carbonate and sodium bicarbonate. Primary, secondary, and tertiary sodium phosphates were also used but the solutions obtained were rejected for the time being. The first three named solutions were assayed for hypochlorite; chlorate, chloride, and degree of alkalinity. For the preparation of the solutions the U. S. P. 1880 method was slightly modified, as follows:

Triturate the chlorinated lime with 500 mils of water; transfer the magma into a liter flask, agitate at intervals during a period of twelve hours, keeping the temperature at or below ordinary room temperature.

Dissolve the reacting salt in 500 mils of hot water, cool and add to the lime magma. Allow the mixture to stand for one hour shaking occasionally. Filter and wash the magma with sufficient water to collect 900 mils of finished product.

For assaying the solutions Carnot's Method (*Chemical News* (1896)), slightly modified, was used. It consisted of determining the hypochlorite content by measuring its oxidizing power on As_2O_3 (Penot's Method), the chlorate content by its action on ferrous sulphate and total chlorides by Volhard's silver nitrate method. The details of the technique are as follows:

TABLE III.

	Chlorinated lime (22% Cl)	112 grams
Sol. 1.	Sodium carbonate (monohyd.)	78 grams
Sol. 2.	Sodium sulphate	90 grams
Sol. 3.	Sodium carbonate (monohyd.)	46 grams
	Sodium bicarbonate	38 grams

The same amount of chlorinated lime was used in each solution.

ASSAY.

(1) *Hypochlorites.*—An aliquot portion of a known alkaline arsenic trioxide solution was titrated with the hypochlorite solution using starch iodide solution as the indicator.

(2) *Chlorates.*—The solution from (1) was made strongly acid with sulphuric acid and a definite amount of standardized ferrous sulphate added. This was then heated to 100° C., cooled, and the excess ferrous sulphate titrated with $N/10$ potassium permanganate solution V. S.

(3) *Chloride.*—The rose tint of the solution from (2) was removed with a trace of ferrous sulphate, an excess of $N/10$ silver nitrate V. S. added, and the excess titrated with $N/10$ ammonium thiocyanate V. S.

(4) *Alkalinity.*—This was determined as already outlined.

The results of these assays are as follows:

TABLE IV.

Solutions From.	Hypochlorites. Per cent.	Chlorates. Per cent.	Chlorides. Per cent.	Alkalinity $N/10$ acid—1 cc.
Sodium carbonate	2.21	0.27	2.54	7.9
Sodium sulphate	2.11	0.30	2.33	7.7
Sodium carbonate and Sodium bicarbonate	2.22	0.36	2.70	10.4

PREPARATION OF CRYSTALLINE SODIUM HYPOCHLORITES.

Attempts to obtain sodium hypochlorites in crystalline form were carried out as follows:

Based upon Mellor's Method 100 cc. portions of the solution, prepared from the mixture of sodium carbonate and sodium bicarbonate with chlorinated lime, were evaporated in a vacuum oven at room temperature until almost entirely crystallized. Then the mother liquor was filtered off and subjected to a freezing mixture at —10° C. when a second lot of crystals was obtained. The mother liquor was removed and the crystals analyzed. The mother liquor was then

evaporated in the oven until entirely crystallized and analyzed. The results are as follows:

TABLE V.

Crystals.	Hypochlorites.	Chlorates.	Chlorides.	Alkalinity % NaOH.
Crystals (10° C.)	14.83	0.02	5.58	....
Crystals (10° C.)	11.60	1.93	9.13	36.07
Crystals (10° C.)	11.61	1.99	9.25	26.77
Crystals from mother liquor	15.87	3.69	4.19	....
Crystals from mother liquor	20.38	3.66	3.58	....
Crystals	2.89	5.36	46.19	8.53
Crystals	3.12	5.35	57.72	8.88

The crystals prepared at $-10°$ C. were very hygroscopic and dissolved in their own water of crystallization. No effort was made to purify them.

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(*To be continued.*)

UNIVERSITY OF WASHINGTON,
COLLEGE OF PHARMACY,
SEATTLE.

UNSOLVED PROBLEMS OF U. S. P. REVISION.*

BY A. H. CLARK.

Some of the unsolved problems of the U. S. P. Revision are concerned with the organization, and methods of working, of the Convention and of the Revision Committee. Among these I know of nothing more important than the present-day method of spasmodically attacking the problem of revision. Every ten years a new committee is elected and it works very energetically for four or five years and then gives no further thought to the subject of revision until the next convention time rolls around. It would seem to me far better that the Committee should continue to work throughout the period of ten years and when this period comes to an end they should have the Pharmacopœia in proper condition for presentation to the Convention for its approval. This would avoid, I think, many of the imperfections which are bound to creep in under the present plan. We now base our

* Read before the Unofficial Conference of U. S. P. and N. F. Revision workers at Chicago, January 12, 1924.

revision, or rather we are supposed to base our revision, upon the work that has been published since the appearance of the previous Pharmacopœia. This plan has not always been adhered to, and, even if it were, it is a rather dangerous procedure in that the Committee is very likely to accept work that has been published without examining it very critically. This results sometimes in having things incorporated in the Pharmacopœia which are subsequently found to be of no value or to be in error in some respect. Original work during the period of revision is objectionable because the time is too short to check up carefully on results that are obtained. This is true not only of the members of the Revision Committee but is also true of the many willing workers throughout the country who coöperate with the Committee in their work. During the rush of trying to get out the book in just as short a time as possible the amount of matter submitted to outside collaborators is so great that it is impossible for them to keep track of it carefully or to check up very carefully on the things which may be to them of great interest or importance. If the process of revision were a continuous one, much original work could be done and checked by the members of the Committee and still further examined critically by those outside of the Committee who take such a deep interest in the work of revision. I feel quite certain that this would result in much good to the Pharmacopœia.

Whether or not the above plan has merit another phase of revision has always seemed to me to be important and worthy of serious consideration. This is the separation of the book into two parts—Part I on general topics and Part II on the more technical subjects. I believe this would have many advantages to the users of the Pharmacopœia and make it much more valuable and interesting to both pharmacist and physician. By eliminating all technical matter such as assay methods, chemical tests, technical microscopic descriptions, etc., much more space in Volume I could be given to matter which is of direct interest to the physician and the pharmacist. While I do not look upon the Pharmacopœia as being a textbook for teachers or students I believe that this scheme would result in a book of greater advantage to them also, and finally it would result in Part I being less expensive than the present-day volume, which might increase its popularity to some extent. The argument often advanced that two volumes are difficult to handle and lead to confusion has no weight in my opinion. Two volumes is only an extension of the present idea of two parts. Very few will deny the advantage of the present two parts. To many the present book is "too scientific" or "too technical;" to others it is not sufficiently so. Two volumes could be made to meet the ideas of both groups and as far as size or unwieldiness is concerned, there would be an advantage to both groups. The writer believes that in quite a number of cases even items now described in full in Part I of the present U. S. P. could be transferred to Volume II and placed in the list of reagents, or a new classification could be made of them.

From the viewpoint of the pharmacist the present Part I could be improved by more fully describing the pharmaceutical processes with perhaps the various reasons for the particular procedure directed and special cautions as to procedure and methods. Working formulas could more generally be given which would enable the pharmacist to prepare many things which he is now unable to do as far as the Pharmacopœia is concerned because no working formulas appear. Full

instructions for preserving drugs and chemicals would be a valuable addition. There are many directions in which this idea might be extended.

The general description of drugs and chemicals (not technical descriptions) might be enlarged upon so that the physician or pharmacist could get some idea from these descriptions as to what these things really are.

From the physicians' standpoint there might be added such things as tables of antidotes, description of physiological tests which are crowded out of the present Pharmacopœia for lack of space and also probably because the present ones are out of date. While I do not approve of discussing therapeutics in the Pharmacopœia, an agreement might be reached upon the inclusion of a table on therapeutic indications of drugs. The popularity of such a thing is evidenced by the arrangement of the matter in New and Non-Official Remedies of the A. M. A. in which the articles described are classified so far as possible according to therapeutic uses.

When we come to consider Volume II, I believe that a great majority of chemists, Government and otherwise, scientists, etc., who may be interested in the Pharmacopœia will agree that by putting all this material into one volume it could be made a great improvement over the present Pharmacopœia in respect to analytical detail. All the assay methods for drugs and chemicals could be more fully described and even alternative methods could be introduced with advantage in many cases. It has often been said that for the purpose of the Food and Drugs Act methods of assay should be as explicit as possible; in fact, should be so explicit that one need not in the least vary the procedures directed. Under the present plan it is impossible to do this because of lack of space. If a special volume is devoted to these subjects, space would be ample.

Volumetric methods have been the most popular in the Pharmacopœia presumably because they are the most rapid. This may be true of the chemists who are working every day along these lines or making a relatively large number of estimations which require a particular set of volumetric solutions. When we consider, however, the person who is an occasional worker in this line, gravimetric methods frequently require less time and labor than volumetric methods. Furthermore, in a number of instances no satisfactory volumetric method is known while gravimetric methods can be successfully applied. Under the plan which I am advocating general gravimetric methods could be given for sulphate, chloride, phosphate, etc., and a method for the gravimetric determination of sodium and potassium might be included. We have a few gravimetric methods in the Pharmacopœia at present and I see no reason why they should not be extended materially in such a book as Volume II could be made.

Other methods that could be more fully treated are—electrolytic; gasometric; colorometric; turbidimetric; polariscopic; boiling point and melting point determinations, etc.

General identity tests could be made more valuable because they could be more fully described. Special identity tests could be more generally introduced into Volume I.

The standardization and preservation of volumetric solutions could be more fully treated.

The two volumes could thus be made far more useful to the interests served by the Pharmacopœia, namely the physician, the pharmacist, and the analyst. Who

knows but that in this way the frequently discussed problem of Government revision of the U. S. P. might be solved? Why not let the pharmacist and the physician revise their part stating what they want to have included and fixing the standard of purity and strength, and let the Government experts decide upon how we shall determine whether or not the standards are met?

DISCUSSION.

WILLIAM B. DAY—The subject is very well presented by Professor Clark. I think it would not be wise to turn the Pharmacopœia over to the Government. We are too much inclined to say "let the Government do it." I doubt whether the Government could work in harmony with the large manufacturers, or command the services of the kind of men we now have. Our present organization could not be excelled. I would regret to see the teachers in the colleges of pharmacy out of touch with pharmacopœial revision.

There should be some way of carrying on the revision continuously. The old Committee ought not to quit working when the book is out. They can tackle problems in preparation for the next revision. By a very slight modification of precedent the work of the committee could be carried on. Some provision should be made so that the whole time of the General Chairman of the Committee could be had.

E. L. NEWCOMB—Why should we make two parts? Why not enlarge the present book somewhat? By cutting down the $1^1/_2$ inch margin which is only for looks and somewhat reducing the historical and non-essential parts, much space could be had for useful information. Keep it one volume instead of two.

A. H. CLARK—I am not necessarily in favor of Government control but of some central continuous control. I do think more should go into the Pharmacopœia than convenient in a single volume.

NEW YORK PHARMACEUTICAL ASSOCIATION.

A questionnaire has been prepared by Samuel S. Dworkin, Chairman of the Committee on Commercial Interests of New York Pharmaceutical Association. Retail pharmacists throughout the State are urged to reply to the questions, or to as many of them as they are personally interested in. They are concerned with such important subjects as cut rates, "drugless drug stores," drug "peddlers" and Sunday closing, and a good response from the retailers of the State will make it possible for the committee on commercial interests of the New York State Pharmaceutical Association to do something toward solving some of the problems involved. Replies should be mailed to Mr. Dworkin, 151 St. Anne's Ave., New York City.

PENNSYLVANIA PHARMACEUTICAL ASSOCIATION.

The *Pennsylvania Pharmacist* for March gives fully a fourth of its pages to A. Ph. A. Headquarters publicity. An account is given of the recent Executive Committee Meeting when preparations were made for the annual convention to be held in Bethlehem.

J. Q. Reinhart, of Philadelphia, was selected as Chairman of the Entertainment Committee. This will be good news for all who expect to attend the Bethlehem Convention. Former attendants, and particularly the ladies, will remember with pleasure the very capable services he has given on previous occasions. The plan this year is to introduce several novel features by way of entertainment and bend every effort to make all the new members feel perfectly at home at the meeting. Mr. Reinhart will have an able corps of helpers, including Messrs. D. M. McMurtrie, of Altoona, J. J. Kelly, of Philadelphia, Paul B. Anspach, of Easton, D. M. Knabb, of Allentown, together with the following members from Bethlehem: George F. Metzger, M. W. Fox, E. O. Prosser and George W. Roland.

DENVER DRUGGISTS' ASSOCIATION.

Druggists of Denver have formed an organization to be known as "Denver's Dependable Druggists," for the purpose of better acquainting the public with the service rendered by the druggists of the city. The officers of the new organization are Julius F. Earnest, president, Earl Van Zandt, vice-president, and Charles J. Clayton, secretary-treasurer.

BIBLIOGRAPHY OF PHARMACEUTICAL RESEARCH

Compiled by A. G. DuMez, Reporter on the Progress of Pharmacy.

All articles recorded in these lists will be presented in abstract form in the bound volumes of the YEAR BOOK, which is issued annually. Those desiring abstracts immediately can obtain them for a fee of one dollar each by communicating with A. G. DuMez, Hygienic Laboratory, U. S. P. H. S., 25th & E Sts., N. W., Washington, D. C.

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AMERICAN PHARMACEUTICAL ASSOCIATION BOOK OF UNOFFICIAL FORMULAS.

Chairman J. Leon Lascoff made an interesting report of progress on the A. Ph. A. Book of Unofficial Formulas before New York Branch, A. Ph. A., March 10. In his introductory remarks he emphasized that "it is absolutely necessary for every pharmacist to have a number of reference books; a pharmacy cannot be conducted without them. Formulas for unofficial preparations should be standardized just as those of the Pharmacopœia and National Formulary are," he said.

Stressing these points the Chairman added that, "not long ago, a pharmacist received notice from the District Attorney to appear and answer a charge of violation of the laws of 1906. The pharmacist did not remember violating any pharmacy laws and was very much concerned relative to what the alleged contravention of law might be." After conferring with him Chairman Lascoff called on a well-known lawyer, who resides in his neighborhood, and asked him whether he could give any information relative to the law without consulting his library. He also communicated with several other lawyers and not one of them could give definite information anent the violation with which the pharmacist was charged; each and every one of them advised that it was necessary to consult the law books before expressing an opinion. Chairman Lascoff made application of the foregoing to the practice of pharmacy by saying that a formula cannot be remembered, with certainty, and no attempt should be made to do so; books of reference should be consulted—these are as necessary for pharmacists as for lawyers.

In the continuation of his remarks Chairman Lascoff stated that there were quite a number of reference books published in Europe as companions to pharmacopœias. He cited as examples the "British Pharmaceutical Codex," "Squire's Companion to the British Pharmacopœia," "Dietrich's Manual" and "Hager's Pharmazeutische Praxis." He contended that if the British Pharmaceutical Codex could include formulas credited to the United States Pharmacopœia, then the proposed Recipe Book could also have formulas from foreign pharmacopœias. It is probably more necessary to have such references here than in Europe because more nationalities are represented in the citizenship of the United States. Many physicians who received their medical education and training abroad still prescribe according to the formulas of their native land, so it is necessary for the pharmacist to possess several foreign pharmacopœias,—the inclusion in the Recipe Book of the important formulas to be found in these standards is therefore a necessity.

"This book of unofficial formulas," Chairman Lascoff said, "should be con-

sidered a companion to the U. S. Pharmacopœia and National Formulary—a manual or handbook of reference for information concerning every type of useful formulas which the pharmacist may be called upon to prepare." He then outlined the groups of formulas which will be included in the book, as follows: Formulas deleted from the U. S. Pharmacopœia and National Formulary, formulas of foreign pharmacopœias and formulas which are frequently prescribed or for which druggists could make propaganda efforts, various other formulas often named after their originators, scattered at present in pharmaceutical and medical journals, hospital formulas and other books; cosmetics, toilet preparations and perfumery; technical recipes as photographic solutions, battery fluids, insecticides, cleaning fluids, etc.; veterinary remedies, agricultural preparations, poultry foods and medicines; beverages, syrups, soda water, etc.

"The cost of such a book can be charged to overhead or equipment," he said; "the expense will be justified in either place and it will come into use many times when formula questions arise. The pharmacist cannot do without a reference library any more than the physician and this Recipe Book will not only be of great value but indispensable."

"The Recipe Book will preserve the formulas deleted in the revisions of the Pharmacopœia and the National Formulary. For many years after a preparation is deleted from these standards, pharmacists everywhere have calls for these deleted preparations. They also have prescriptions containing preparations of foreign pharmacopœias and a source of information must be had regarding them which this book will supply."

Chairman Lascoff's report informs that "up to 1924, 714 formulas had been printed and since then other formulas have been sent out to members of the Committee. The number of these additional formulas is 55. There are then also the deletions from the Pharmacopœia and National Formulary but all of them need not be included in the Recipe Book, notably such preparations as extracts and fluidextracts, because few of them if any are made by the retail pharmacist. Comparatively few formulas have come in from retail pharmacists and this is disappointing because the formulas represented should be from every section of the country."

Chairman Lascoff referred to preparations that are called for quite frequently in his pharmacy:

Wadsworth's Solution; Thiersch's Solution—*Liquor Boro-Salicylatus;* Kummerfeld's Cosmetic Lotion—*Aqua Cosmetica Kummerfeldi;* Ointment of Scarlet Red—several formulas; Yellow Astringent Eye Wash—*Collyrium Adstringens Luteum;* Modified Lassar's Paste—*Pasta Zinc Modificata;* White Lotion—*Lotio Alba;** Compound White Lotion—*Lotio Alba Composita;* Calamine Lotion—*Lotio Calaminæ;* Compound Calamine Lotion—*Lotio Calaminæ* Composita;* Quinine Lotion (Eau de Quinine)—*Lotio Quininæ;* Witch Hazel Ointment—*Unguentum Hamamelidis;* Easton's Syrup—*Syrupus Ferri, Quininæ et Strychninæ Phosphatum;* Neutral Mixture—*Mistura Potassii Citratis,* U. S. P. VI; Mixture of Rhubarb and Soda—*Mistura Rhei et Sodæ, U. S. P. VI.*

The report of Chairman Lascoff was continued by giving a classification of the preparations thus far considered; they follow:

* Every pharmacist seems to have a formula of his own.—J. L. L.

Acid, 1
Applications, 2
Alcohol, 1
Antiseptics, 2
Balsams, 3
Baths, 5
Brilliantines, 2
Capsules, 1
Cements, 8
Cerates, 4
Collodion, 1
Collyria, 2
Confections, 1
Corn Remedies, 2
Creams, 10
Cleansers, 1
Deodorizers, 1
Disinfectants, 1
Drops, 3
Dusting Powders, 18
Dyes, 1
Dressings, 1
Emulsions, 12
Enamels, 2
Enemas, 3
Elixirs, 18
Essences, 4
Excipient, 1
Extracts, 1
Face Powders, 4
Fire Extinguishers, 3
Foot Powders, 5
Flavoring Extracts, 19
Fluids, 6
Gargles, 6
Gelatins, 2
Glue, 1
Glycerins, 5
Glycerites, 5
Glyceroles, 5
Gauze, 1
Headache Remedies, 2
Hydromel, 1
Ices, 19
Infusions, 4
Inhalations, 3
Injections, 2
Jellies, 2
Lanoliments, 2
Liniments, 11
Liquids, 5
Liquors, 10
Lipsticks, 2
Lotions, 72
Lutes, 3
Lubricants, 3
Mixtures, 42
Mass, 1
Moth Destroyers and Repellants, 12
Mouth Washes, 6
Mucilages, 3
Nascent Chemicals, 2
Oils, 11
Ointments, 46
Oleosacchara, 2
Paint Remover, 1
Paints, 2
Pastes, 17
Pills, 6
Plugs, 2
Pomades, 2
Polishes, 8
Powders, 16
Pigments, 2
Putty, 1
Reagents, 11
Remedies, 13
Rouges, 2
Snuffs, 4
Soaps, 4
Solutions, 33
Soda Fountain Requisites, 30
Spirits, 4
Stains, 10
Suppositories, 7
Syrups, 11
Tablets, 16
Teas, 32
Tinctures, 44
Tonics, 5
Tooth Powders, 13
Treatment, 1
Troches, 2
Vinegars, 6
Washes, 5
Waters, 21
Waxes, 2

Chairman Lascoff in presenting his report exhibited about 100 preparations made according to formulas which were submitted. The value of this presentation was not only by the exhibit of the preparations properly made but also by showing preparations made after the same formulas but by different manipulation. In the one instance an imperfect preparation was produced and in the other a satisfactory one, this indicating the importance of accurate compounding; for example, following the formula, in a Salicylic Acid Mouth Wash the salicylic acid was precipitated, which was prevented by the addition of two more drachms of alcohol. These preparations were put up by Dr. Curt P. Wimmer, Dr. Robert P. Fischelis, and the Chairman. The latter presented 112 additional formulas; some of them had been called for in his pharmacy and some of them were copies of formulas from foreign pharmacopœias; these preparations were successfully compounded. Charts were shown bearing the formulas and the finished products were passed around to those in attendance. Difficulties that were met with in compounding were explained and some of the formulas were shown on the screen.

Chairman Lascoff introduced a letter sent out to the members of the Committee in which consideration of formulas was asked. He explained that 114 deletions were made from the National Formulary IV, and the names of these preparations were shown by slides. The Chairman concluded his report by stating that 714 formulas had been published, 112 new ones had been submitted to which must be added the deletions to be included from the Pharmacopœia and National Formulary. In his opinion the book of unofficial formulas will serve a large purpose, and in this opinion he is supported by the members of the American Pharmaceutical Association and pharmacists generally, here and abroad.

WHAT PREPARATIONS OUGHT TO BE AND CAN BE MADE IN A HOSPITAL LABORATORY.*

BY B. E. HÖCKERT.

In considering this subject there are some things to which we must first pay attention. The first in importance is the hospital's equipment for manufacturing medical preparations. I take it for granted that every hospital has the apparatus most commonly used such as scales, weights, graduates, mortars, funnels, filter paper, etc. Without any other apparatus there are a number of the simpler preparations that should and can be made at home. The next to consider is the time the person in charge of the medical department has to give to manufacturing medicines. If the pharmacist has a number of other duties besides filling the orders from the wards, he may not have time to manufacture any medical preparations. This is a matter for the hospital authorities to look into. What saving can be made by such manufacturing and will it pay to give more time to it, are the questions first to be considered. For this purpose it is necessary to find out the difference between the costs of home-made and bought goods. The quantity of an article used may have some influence on the price, but as a rule I will say that the manufacturers charge considerable for their work. If it seems that more money is spent for factory-made goods than is required to employ another person for some of the duties of the one having charge of the dispensary, this ought to be done, provided the person in charge of the department has the necessary knowledge and experience to manufacture pharmaceutical preparations. And here I come to one of the most important points to be considered. In many of the hospitals the medicine is handled by an intern or nurse without any special knowledge of such things. Of course everything then must be bought and considerable money will be spent unnecessarily. These interns or nurses, after a while, acquire some experience and make some of the simpler preparations. This ought not to be allowed and the Boards of Pharmacy should have the right to interfere in all such cases. It ought to be a strict rule that no manufacture of medical preparations should be allowed in a hospital where there is not an experienced pharmacist employed, because even a slight mistake in such manufacturing may result in serious consequences.[1] Of course such interns or nurses may in time become sufficiently experienced to make preparations, the manufacture of which is not too complicated. But in such cases they should be required to pass some examination or give other satisfactory proof of their competence, and the State Board of Pharmacy is the proper and most competent body to determine the qualifications of the pharmacists.

Those matters being considered and properly adjusted we can look at our subject from other viewpoints. The first thing to be considered is the price, and in that connection the preparations containing alcohol will be referred to. As we all know, hospitals secure their alcohol taxfree, while manufacturers must pay a very high tax. Therefore in making preparations containing alcohol, not only the cost of manufacturing is saved but also the tax on the alcohol. Not all alcoholic preparations can be made in hospitals, as the formulas are too complicated and the apparatus needed entirely too expensive to permit of such manufacture. I have

* Section on Practical Pharmacy and Dispensing, A. Ph. A., Asheville meeting, 1923.

[1] See JOURNAL A. PH. A., 12, 870–874, 1923.

especially in mind extracts, fluidextracts and similar preparations. But the majority of alcoholic preparations should and can be made in the hospitals. I refer to the tinctures, medicated wines, and elixirs of the U. S. P. and the N. F., which any pharmacist with fair education and experience ought to be able to make. Tinctures that require special facilities are tincture of kino, tincture of lactucarium and deodorized tincture of opium, and I warn against making them without the necessary equipment. There is no elixir that an experienced pharmacist cannot make, although elixir of phosphorus may cause trouble.

It would take me entirely too far to go through all the preparations of the U. S. P. and N. F., so I shall only mention a few, the making of which present some difficulties. I cannot recommend the making of anything but of galenical preparation. Even though the pharmacist may have had the most extensive experience in making the chemical preparations, he will rarely find the necessary facilities in a hospital laboratory. Further I will warn against making anything in too small quantities. In all manufacturing of medicine there is a certain loss and in preparing a very small quantity the cost is often as large as in making a fairly large amount. For example, I never make less than one liter of any tincture and other preparations in proportion. This rule does not apply to everything. For example, Scarlet Red Ointment and Analgesic Balm I seldom make in larger quantities than 250 Gm. Another rule I have is not to buy several drugs to make one preparation that is not being used sufficiently. Just now I have in mind Compound Licorice Powder. We use about 500 Gm. every three months. It is necessary to buy at least three of the ingredients especially for this powder, and they are used in different quantities so there will always be a small amount remaining on hand. Also the price of the ready-made powder is so low that very little can be saved by making it in the amount in which we use it. A few years ago we used about three kilograms a month and then there was enough profit in it to make it at home. And so on. Now let us look at the preparations I do not care to make and will not advise their manufacture in the hospital dispensary.

First as to the ointments. There are only two in the U. S. P. that cannot be made in the hospital pharmacy, namely, mercurial ointment and ointment of mercuric nitrate. For a person with proper experience and skill they present no great difficulties, but few if any hospitals have the apparatus required nor can the pharmacist afford the time necessary for their manufacture. All other ointments any pharmacist ought to be able to make with the facilities at hand in a hospital; all the ointments of the N. F. should be made by the pharmacist.

Concerning troches there is not much difficulty in making them, but as a rule they are sold so cheaply that it is best to buy them provided they are not used in very large quantities.

The greater number of the syrups are simple preparations that can be made without any difficulty in a hospital laboratory. But there are two official syrups—Syrup of Ferrous Iodide, and Syrup of Calcium Lactophosphate—that I must warn against making without considerable experience. The manufacture of a number of the syrups of the N. F. requires unusual skill and experience and I do not advise their manufacture. Such syrups are those involving a chemical reaction, for instance those that contain iodine.

Suppositories are as a rule made by the pharmacists and ought to be made

by them. Glycerin and boroglycerin suppositories are an exception as they generally can be bought cheaper from large manufacturers unless they are used in sufficient quantities, to warrant their manufacture. Most of the spirits are readily prepared, such preparations as spirit of nitrous ether and spirit of nitroglycerin are exceptions. Effervescent salts cannot as a rule be made at home, as the necessary facilities are generally lacking.

Soft soap (green soap) made in factories can be had of the U. S. P. formula at less cost than that of the dispensary.

Compound powders as a rule can and should be made at home. I have already mentioned some exceptions.

Pills are very seldom made in the hospital pharmacies as factory-made gelatin, chocolate or sugar-coated pills are much more satisfactory to both physicians and patients; however, a pill machine is a very handy and necessary apparatus to keep on hand in a hospital for special occasions.

The different petroxolins of the N. F. seem at first to present some difficulties, but really there is no trouble at all in making them. The oleoresins of the N. F. and the U. S. P. are not suitable for home manufacture; neither are the infused oils—the apparatus needed is expensive, and it requires more skill and experience than as a rule most pharmacists possess and they add to the fire risk. The mixtures, muls, oil sprays and oleates are all so simple that it is hardly necessary to mention them, but I have seen some of them bought by hospitals; in my opinion it is inexcusable for any pharmacist to buy these preparations or any other as simple and easy to make. The magmas again are not suitable for home manufacture. Many of the more simple solutions are readily prepared. Some, like several containing arsenic, are to be heated and will not pay to make in small quantities. Some others again include a chemical reaction and should not be attempted by a person not having the necessary experience and apparatus. Compound solution of cresol can be bought just as cheaply as it can be made. The liniments are simple mixtures, that will cause no trouble for any experienced pharmacist.

Glycerites and glycero-gelatins are some of the very simple preparations which do not offer great difficulties in preparing them.

Plasters are as a rule factory preparations that neither can nor should be made in the hospital pharmacy.

Collodions should not be manufactured in a hospital pharmacy, however the different collodion mixtures can be compounded; the only possible exception may be catharidal collodion, but in small quantities it can be prepared by any pharmacist. Cerates are adapted for hospital manufacturing with the exception of cerate of cantharides. Cataplasma of kaolin can quite easily be made; the aromatic waters present no difficulties for pharmacists.

What has been said should be a sufficient guide to follow in deciding whether non-official preparations should be manufactured in the hospital pharmacy. Tablets require special consideration and this would extend the paper beyond the limits of time deemed advisable on this occasion.

PRESCRIPTION CLINIC.*

BY ADLEY B. NICHOLS AND J. L. NEBINGER.

The prescription clinic chapter selected for this year is one of a slightly different character than has been previously used. While we are still dealing with incompatibilities, we are using a mechanical rather than a chemical type.

In all prescription work the pharmacist is given the opportunity and is expected to make as fine an appearing preparation as possible of every article he turns out. His four years of apprenticeship and his college course are all necessary steps in preparing and training him for his future work and for prescription emergencies.

There are many pharmacists in every community who do not realize what *secundum artem* means. They fill all prescriptions in a mechanical way, adding the various ingredients to each other as they are listed on the prescription blank, and if the finished product is an unsightly one they will place a "shake label" on the bottle and let it go at that, explaining that the doctor should know better than to prescribe such a combination. In many instances, if the pharmacist will analyze the combination and then prepare it *secundum artem* he will be able to make a fine uniform product rather than one which would be a disgrace to his profession.

The prescription for pills, emulsion or ointment, usually calls forth the skill of the dispenser and it is left entirely in his hands as to whether the pills shall be small, solid, and round; the emulsion uniform and free from oil globules; the ointment perfectly smooth and free from grittiness, or whether these preparations shall be put together without much thought as to their final appearance and usefulness. Most pharmacists are ready for prescriptions such as these, but when the same difficulty arises in another place, where it is possibly obscured by other materials, they so frequently fail to realize that it is their duty to alter that prescription, not in its medicinal form, but in a mechanical way, as their experience should have taught them. The addition of a small amount of some inert material or substance will often change the entire appearance of a product, transforming the most unsightly preparation into one of elegance and uniformity.

The following prescriptions have all been taken from current files[1] and are given to show this one phase of incompatibility, one wherein the art of the pharmacist is called into play, that a proper product may be dispensed.

PRESCRIPTION 1.

Potassium Citrate	℥ vii
Spirit of Nitrous Ether	ƒ℥ i
Simple Syrup	ƒ℥ i
Water to make	ƒ℥ iv

This is a familiar combination, and most of us recognize it as one in which a separation of the Spirit of Nitre occurs, a salting out process in fact. This product is very frequently dispensed with the "shake well" label, while we find that the difficulty can easily be remedied by the addition of a small amount of water; in

* Section on Practical Pharmacy and Dispensing, A. Ph. A., Asheville meeting, 1923.

[1] EDITOR'S NOTE.—The prescriptions were written in the usual form of prescription Latin but for sake of uniformity liberty was taken in converting them into English terms, excepting weights and measures.

this case less than one drachm is required to give a clear uniform preparation in which the spirit of nitrous ether is entirely miscible, thus eliminating any possibility of un-uniformness of dosage.

PRESCRIPTION 2.

Potassium Chlorate	gr. xxx
Ammoniated Tr. of Guaiac	
Compound Tr. of Cinchona of each	ƒ℥ ii
Honey	ƒ℥ i
Water to make	ƒ℥ iv

With these tinctures we at once visualize our trouble, the separation of gummy material on the sides of the bottle and a sediment finally settling to the bottom. It is not necessary to add any other substance to correct the difficulty here, but we find that proper manipulation of the given ingredients settles the question. If we place the honey in the bottle first and rotate until the honey comes in contact and coats every side and corner we find our trouble solved. The tincture and water can then be added and an entirely different product will result, there being no separation at all, either on the sides or the bottom of the container, and the preparation is nearly clear and of a reddish color, instead of a muddy brown.

PRESCRIPTION 3.

Cocaine Hydrochloride	gr. x
Sol. Adrenalin Chloride	ƒ℥ i
Antipyrine	
Tannic Acid of each	gr. xc
White Petrolatum to make	℥ ii

Incompatibilities similar to this are quite common, where the attempt is made to mix aqueous and oily substances. In filling this prescription as it stands, the difficulty is with the solid gummy mass which separates out as the preparation is worked. This trouble can be overcome by replacing the Solution of Adrenalin Chloride with Adrenalin Inhalant, an oily preparation of the same strength, and this will make a uniform smooth ointment possible.

PRESCRIPTION 4.

Calamine	gr. lx
Phenol	gr. xx
Menthol	gr. v
Lime water	ƒ℥ xii
Olive Oil	ƒ℥ iv
Water to make	ƒ℥ iv
M. sec. art.	
Use *no* "shake well" label	

This prescription is quite common in some of the Eastern States, but one rarely sees combinations like this in which the physician asks that *no* shake label be used. This came about through the fact that in one particular store the pharmacist prepared it *sec. art.* and the product he turned out needed no shake label. The physician immediately recognized this fact and the superiority of the preparation and his prescriptions now contain the added note which often puzzles others when the prescription perchance is taken to another store.

As it stands, it is almost impossible to make a preparation that will hold together long enough for the patient to obtain a uniform application. If one attempts to mix the ingredients in a mortar, he finds that the partially emulsified oil separates from the water and clings tenaciously to the sides of the container and it is impossible to transfer the material to a bottle. If the mixture is prepared as carefully as possible there is a separation of oil globules, calamine, and water, and the product is very unsightly.

The secret of the "no shake label" is found in the addition of about six grains of tragacanth, which emulsifies the oil and acts as a suspending medium for the calamine, giving a uniform, smooth product, in which there is no separation. Of course an *extremely fine* calamine powder must be used; for the purpose enough powder should be bolted for prescriptions of this type.

PRESCRIPTION 5.

Sulphurated Potassa		
Zinc Sulphate	of each	℥ i
White Petrolatum	to make	℥ i

This combination is familiar to us as "white lotion" but we seldom see it prescribed in the form of an ointment. This particular physician asked if an ointment could be prepared in place of the lotion, and the following method of preparation was finally worked out.

To the sulphurated potassa is added just sufficient water to make a solution, about one drachm being required. The zinc sulphate is triturated directly with this solution and the reaction takes place, giving the characteristic white precipitate. About one drachm of anhydrous wool fat is now added, to take up the small amount of water which is present, and this mixture is then incorporated with the petrolatum.

These are only a few of the types which are always coming up for a pharmacist's consideration and we hope they will act as incentives to many of our fellowmen and make them realize their responsibility to their profession, to the doctor, and to the patient.

DEPARTMENT OF OPERATIVE PHARMACY,
PHILADELPHIA COLLEGE OF PHARMACY & SCIENCE.

COMMENT.

The paper was read in its entirety by Adley B. Nichols and at the close of the reading the prescriptions were discussed one by one. Each prescription was printed on a large card and these were placed where they could be viewed from the entire room while the discussion was going on. Two samples of each prescription were also displayed, one filled as written, or the wrong way, and the other by the corrected method as outlined in the paper.

It was generally agreed that the methods of procedure outlined in the paper were all within the scope of a pharmacist's rights as dispenser. It was recognized that a pharmacist has the right to modify a prescription, to produce a more satisfactory and a better appearing product, providing that the modification makes no serious change in the therapeutic effect.

A considerable amount of time was given to the discussion all of which was extremely interesting, the following members taking part: I. A. Becker, G. M. Beringer, H. A. B. Dunning, W. H. Frost, I. Griffith, Wm. Gray, D. F. Jones, J. C. Krantz Jr., A. B. Nichols and C. M. Snow.

PARAGRAPHS FROM A HOSPITAL PHARMACY NOTEBOOK.*

BY IVOR GRIFFITH.*

Eserine salicylate may be preserved in the form of its aqueous solution for instillation into the eye, by dissolving it in a saturated solution of boric acid.

Most eserine salts are very readily decomposed by alkaline substances, with the production of a red to a brown color. This tendency to discoloration may also be retarded by dissolving the salt in carbonated water.

Carbonated water lends itself well to the preservation of many organic compounds, and substances such as suprarenal extract are not prone to spoil when diluted with "soda water" instead of with distilled water.

Suprarenal extract or adrenalin solutions are readily amenable to qualitative chemical tests, but one of the most delicate tests for the natural as well as the synthetic compound is to instill a fraction of a drop of the 1:1000 solution into a freshly made scratch on the forearm. If there is an appreciable quantity of the active principle present, the scarified area will become blanched and in some instances show a raised urticarial wheal, resembling an insect bite.

In the manufacturing of suppositories using heat and brass molds, the best lubricating agent is the official tincture of green soap. Using this fluid it is unnecessary to relubricate the molds oftener than once for every five or six batches.

Tincture of green soap for operating room use is very conveniently made by taking 25 pounds of soft soap, cotton seed stock, or preferably cottonseed stock with ten per cent. cocoanut oil soap, and adding to it ten gallons of hot water and five gallons of medicated alcohol. Upon allowing this mixture to stand, covered, in a warm room for a few days, the result is a homogeneous solution, self clarified by sedimentation. It may be tinted a beautiful green by adding to it about 2 ounces of a 1:1000 aqueous solution of toluidine blue.

Compound cresol solution may be easily made by adding ten pounds of clear cresol to the same amount of soft soap and then allowing the mixture to stand in a covered vessel for several days. The soap will go into complete solution and the end product is perfectly miscible with water. Solution of cresol so made needs no filtering, for it becomes perfectly clear by sedimentation.

A very palatable potassium citrate solution for the pediatric clinic, may be made by rubbing the citrate with an equal amount of coarse sugar and a piece of fresh lemon rind. Then there is added to this mixture carbonated water from a siphon, and the finished solution strained through gauze or cotton.

An empty serum or antitoxin syringe, without the needle, is an excellent aid in dispensing orders calling for dram portions of mercurial ointment for inunction. The syringe barrel is filled at the upper orifice, the plunger inserted and the oint-

* Presented before Section on Practical Pharmacy and Dispensing, A. Ph. A., Asheville meeting, 1923.

ment pressed out on to the waxed paper on the scale. This convenient method may also be used in filling soft capsules, retaining a coarse needle where the nature of the filling liquid admits of such handling.

An order for ink to be used in the X-ray department of the hospital for the purpose of marking the films previous to exposure and development was recently submitted to the pharmacy. Three inks were experimented with. They were as follows:

1. Twenty-five per cent. suspension of bismuth metal, in fine powder, in a thin mucilage.
2. Strong solution of lead subacetate.
3. Twenty-five per cent. solution of collargel, a colloidal silver preparation, with the addition of a little oxide of zinc.

The last named proved most satisfactory although not quite as efficient as the usual lead markers.

Persons who have an antipathy to the suspensions of barium sulphate used in the X-ray department for shadow pictures may find a suspension of the chemical in malted milk, slightly warmed, more palatable. A thickened chocolate vehicle is also preferable to the simple paste generally used. Barium sulphate is not readily decomposed and these adjunctive administrative methods do not add any element of danger to its use.

Castor oil jelly may be made much more agreeable to the palate by making it with about 8 per cent. of spermaceti instead of with the usual stearin soap base. The spermaceti is fused and the warmed oil and flavoring material then added. A little saccharin and color is generally added in alcohol.

Hypodermic syringes are generally sterilized by simple rinsing with alcohol. Often an appreciable residuum of alcohol remains in the barrel. The medicament afterwards added is sometimes affected by this residuum. This is said to be the frequent cause of untoward results following the injection of such viable substances as the pollen or food proteins which are precipitated by the alcohol. Before the administration of such sensitive solutions, the alcohol sterilized syringe should always be rinsed out with sterile distilled water.

Anent barium sulphate, a note of warning regarding the danger of prolonged improper storage may not be amiss. A large Philadelphia hospital recently encountered a great deal of trouble with patients who had been given the usual doses of the chemical in their X-ray clinic. Examination of the sulphate led to the discovery in it of more than traces of soluble sulphides, which were probably responsible for the toxic effects of the material. Whether these were originally present or there as products of reduction is not known. The salt had been stored in a damp cellar for a long period of time and it is quite likely that decomposition may have occurred. This compound then should not be purchased in amount greatly in excess of monthly or quarterly needs.

RETAIL SALESMANSHIP.*

BY TURNER F. CURRENS.

RETAIL SALESMANSHIP offers a great opportunity for *selling*. Customers approach the seller in a buying mood, looking for and inquiring about something they want to buy. In the majority of cases, retail salesmen are made "soft" by this very opportunity, and refuse to reach out for additional sales that can be made with comparative ease. This applies to proprietors, and managers, as well as clerks; in fact, the responsibility should be laid at the feet of the proprietor or manager, rather than the clerk. If traveling salesmen used the tactics of the majority of their customers, they would starve to death.

Sales Training of the Chain Store vs. the Independent Store.—It is an absolute fact that an independent drug store, with a strong personality behind it, has a great advantage over the chain store. The owners and managers of chain organizations are alive to their own shortcomings, and are combating the sales inertia of their clerks by having weekly sales meetings, lectures on merchandising and advertising, actual training classes, with occasional outside speakers, and manufacturers' representatives. So that it behooves the independent dealer to learn how to increase his sales by displaying his wares, and intelligently offering them to the buying-minded public while in his store.

An atmosphere of cheerfulness has a very direct effect on people's spending. Customers do not freely spend in a surrounding of gloom. Plus the cheerfulness with a thorough-going knowledge of what is offered. People buy from salesmen who know their business. Knowledge shown of an item offered, immediately begets the confidence of the propsect, and confidence always stimulates sales. Cheerfulness and interest in customers must be sustained to get the most satisfactory results.

Remuneration.—There is nothing deadlier to an employee than salary. Let an employee learn that he has reached his limit and he is immediately dissatisfied. Human beings must have incentive to do their best, and *money* is the greatest incentive yet discovered. Proprietors should carefully work out a just salary, all things considered and on top of that, run continual PMs. Keep running sales which everlastingly give the clerks a chance to make a little extra money, week after week. Such a plan sustains interest, and certainly increases sales. Where proprietors do selling themselves, they should draw down their own PM. The extra commission keeps the "old man" from getting sour and independent. Remember: There is nothing more killing to a man's ambition than salary, so always try to arrange for some extra remuneration.

WAYS AND MEANS.

Proprietors will find many ideas and helps in selling by not living too close to their business. Get out and see what the other fellow is doing. Get acquainted with your nearby competitor. Often he is found to be a mighty good fellow, willing to coöperate for mutual benefit. Watch the advertising leads of the big department stores.

"No trouble to show goods." If this principle is followed out, it means the building of good will. There are a lot of people engaged in retail selling who believe

* Read before Section on Commercial Interests, A. Ph. A., Asheville meeting, 1923.

they have interpreted this old saying by making attractive displays of merchandise. Merchandise so displayed will in many instances sell itself, but get behind those displays by intelligently offering items displayed to customers in the store.

A. If you decide to put on a special deal on some item advantageously bought, or to attract customers to the store, put your special out in front—in the middle of the store—where everybody can see it. Man it with a pleasant personality—a clerk who has been told everything there is to know about that particular item. Solicit every possible buyer, not obnoxiously way lay, but solicit.

B. Your clerks must know their goods. A sales person who knows what he is talking about creates confidence and makes sales. *E. g.*, I recently bought a hot water heater. The selection had narrowed down to two—both good—both the same price. The order went to the man who knew all about his own heater. His knowledge brought confidence to his proposition.

C. Window displays make better retail selling possible, but the window display only works part time, if the proprietor and his clerks do not link up with it by inside displays and inside personal selling. The purpose of a window display is to sell goods, so during the time a certain item is on display, back it up with personal effort. Show every customer at the close of a sale, the item in the window. Talk it up. Price it. "Let me include this in your package."

D. The retailer who feels he is doing a manufacturer a favor by giving him his window, and then not backing up the display, is not giving the manufacturer a square deal, and is cheating himself. A good hearty coöperation makes money for both.

E. The best place to successfully carry on retail selling is right at the wrapping counter, or the cash register. Have handy some good *push* item of value. Show it, speak intelligently of it, recommend it—and "will one be enough?" and a sale is made.

F. Always put price tickets on displayed items. Tell the people how much it is. That breaks down the fear of buyers who do not like to be embarrassed by asking prices of something they can't afford.

G. When an item is shown to a customer, don't stand idly by with your mouth shut, or looking out the window, but explain the merits of your proposition, and if you have something *else* to sell, show it and explain why it is better.

As an employer sells—so sell his clerks. Sell them what they want, and let it go at that, is a lazy principle.

It is not an exaggeration to say there are thousands of retail sellers, proprietors, clerks, boys, at this late day, closing their interview with customers with "Nothing else today?" "Nothing more?" "Is that all?" The latter may not be as criminal as the first, but it is just as hard on the cash register.

Change that "What else can I do for you today?" to "Let me show you this new imported soap;" "By the way, we are running a special sale on writing paper;" "Fresh shipment of candy this morning;" "Here is a new idea in a tooth brush."

Always recommend good things. Line up five or six things, so if you fall down on one, you have another.

Divide your items—some for young women—some for the older women. Don't insult a poor, plain spinster, by offering rouge. Study your people so as to know what to offer. Get into the present century with "Let me show you." But before you start know what you are talking about. Beget confidence by a knowledge of your wares. Get the "Good morning, Mrs. Smith," the "Hello, Tommy" introductions to working. The cheerful atmosphere—and the intelligent close-up.

Seasonal Selling.—There are four or five distinct times a year when certain items are actually in demand. The spring, for instance, is usually house cleaning time. Disinfectants, cleansing soap. Play up the suggestion of bath cabinet renovation, etc. In the summer, vacation needs. Nearly everything in the drug store. Supplies of soap, dental cream, headache tablets, bathing tablets, or get into the gift line—candy, cameras, etc. A straight run for three or four months. As fall approaches, winter needs should be put to the fore. Nasal sprays, cold tablets, cough syrups. I know of one retail store in the middle west that makes a pretty penny out of featuring chamois vests.

Two-way Selling is an old story, and a telling way of selling. Always offer something. "No trouble to show goods."

In a prescription pharmacy, there must be waits. Customers waiting for prescriptions are always good prospects. Arrange a comfortable place for the customer to wait. A few chairs, a rug. Then in juxtaposition, display a constantly changing array of merchandise. Sick room supplies; little novelties that would appeal to a person confined to a room. Ingenuity will take care of the items to be displayed. The prescriptionist always has the opportunity of suggestion when handing out the prescription.

Some stores observe the rule that the customers coming into the store should not be approached; that it is beneath the dignity of the store to have demonstrations. A salesman behind the counter can always with dignity offer his wares.

To-day, many retail pharmacies are handling periodicals. A Vermont dealer is making a good profit by going through his periodicals, and neatly stamping all advertised items which he carries.

Advertising.—The live wire to-day, who may not himself advertise, can get in on all good things by simply watching the magazines, and newspapers, and lining up. By displaying things advertised, the customer is sold when he arrives. Many dealers blindly, selfishly, won't line up; afraid they are doing something for nothing; but such men simply are overlooking chances for easy additional sales.

Druggists in small towns have so many chances to get rich, it is hard to see why they remain poor. Dealers handling paints, wait for the farmer to come in and buy paint for house or barn. Dealers handling stock food could go out and book future orders. Local newspaper advertising with direct tie-up or window displays, counter displays, and push selling. Countryside signs are easy to put up. Make up a little country picnic and tack signs as you go.

Standardization.—One great discouragement to proprietors and clerks is the great number of items they have to sell—10 or 15 cough syrups, 2 or 3 milk of mag-

nesias, half dozen pills, and so on, but this hit-and-miss selling can be eliminated. The responsibility rests on the proprietor or manager. He should standardize his lines. Carry the staples for which there is a regular call, keeping in mind the necessity of quality in accordance with that call. Cut out all possible duplication, standardize the store—then prepare tables of profitable items, and display those items—offer them to customers, bearing in mind, when merchandise is offered, the person offering should know all about it.

Courses in Colleges of Pharmacy.—Our colleges of pharmacy could do wonders to improve the drug business (I said drug business, purposely, meaning to include all branches), by conducting courses in Store Management, Buying, Retail Selling, Advertising, Accounting. There is just as much need for this kind of teaching as there is for teaching botany, chemistry, and pharmacognosy. A general practitioner of law may not lean to criminal law; he may prefer real estate law, or tax law, yet, if he is a general lawyer, he must know them all. If our drug stores could be devoted exclusively to prescriptions, urinalysis, sick room supplies, etc., it would be different, but that is not the order of things in our country, so the pharmacist must combine the professional with the commercial to keep up with the procession. If his business is a two-way business, he must operate both ways, and by being a good merchandiser, he attracts more people to his store. Thus he can expect a greater volume of professional business, and with the greater volume he has greater chance to better prepare for this part of the business.

To my mind, a college of pharmacy owes its students a good, strong course in retail merchandising, and by teaching students how to prosper, they will make it possible to conduct better pharmacies, and more effectively protect the health of the community.

COMMENT.

Quite a number took part in the discussion which followed the reading of the paper; some of the points were emphasized, and suggestions made that differed in methods as means to the same end—increasing volume and profit, and develop salesmanship.

STIMULATING AN INTEREST IN CHEMISTRY.

Through a fund provided by Mr. and Mrs. Francis P. Garvan of New York, the American Chemical Society has carried on a country-wide essay contest in the high schools. This has just ended and prizes will be awarded in each State and in addition scholarships. A variety of subjects were submitted, all dealing with chemistry in various relations to life, in the home, the community, the farm, the factory and for purposes of industrial development and national defense. In order to develop the chemical industries popular interest must be turned to the study of this department of science.

There is opportunity of developing a greater popular interest concerning pharmaceutical subjects—there is a growing interest—people will attend popular lectures on such topics; they will "listen-in." The result has been most encouraging to members of the faculty of the Philadelphia College of Pharmacy and Science. The series of twelve lectures of the season of 1922–1923 has been published in book form. The subjects broadcasted and presented by lecturers this season include—"What Is Chocolate," "Sugar as a Medicine," "Food and Poison," "The Romance of Drugs," "A Bit of Food Chemistry," "Our Minute Enemies and How to Rout Them," "Something about Gases," etc. Dean Frederick J. Wulling's series of talks relating to pharmacy was broadcasted and gave him an opportunity to interest the public relating to the Headquarters Building; reference is made elsewhere in this issue of the JOURNAL.

THE DEPARTMENT OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES

A COMBINED CURRICULUM IN PHARMACY AND MEDICINE.*

BY EDWARD H. KRAUS.

What is considered to be a very important advance in pharmaceutical education has just been made at the University of Michigan by the recent authorization by the Board of Regents of a combined curriculum in pharmacy and medicine. This combined course gives official recognition to another type of preparation for the study of medicine which, we are confident, will appeal to a considerable number of serious minded students who desire a more thorough grounding in chemistry than is offered by the other authorized combined curricula, as well as a comprehensive training and experience in pharmacy. It is hoped that this new program of study will prove especially beneficial to those students of medicine who plan to engage in general practice or who desire to prepare themselves for a career in the research laboratories of our educational, scientific, and medical or pharmaceutical institutions.

Since 1890 the time required of students to complete the course in medicine leading to graduation from the foremost educational institutions of the country with the degree of Doctor of Medicine has been greatly increased. In that year the medical course at Michigan was increased from three to four years of nine months each and at the same time a preparation equivalent to graduation from an approved high school was required for admission. However, in order to encourage students to enter upon the study of medicine with a superior preparation, involving several years of college work, a combination course in Letters and Medicine was also arranged. This combined curriculum permitted students to graduate from both the Arts College and the Medical School in six years.

With the rapid development of the medical sciences which made itself so strongly felt during the next twenty years it soon became evident that at least two years of college training should be demanded as the minimum admission requirement to the study of medicine. Accordingly, in 1909, at this University all prospective students of medicine were required to submit credentials showing that they had completed two full years of study in an Arts College of recognized standing, said instruction to include certain prescribed courses in English, modern foreign language, physics, chemistry, and biology. Thus, the regulation time to obtain the M.D. degree was extended from four to six years beyond the high school.

When the above advanced requirement became effective it was obviously necessary to revise the combined curriculum leading to two degrees, which was introduced in 1890. This was done by arranging two combined courses. One of these requires two and one-half years of work in the College of Literature, Science, and the Arts and four years in the Medical School and leads to the degree of Bachelor of Science in Medicine upon the completion of the first two years in the Medical School, and to the degree of Doctor of Medicine at the completion of the entire

* Submitted by C. B. Jordan, Chairman Executive Committee, A. C. P. F.

curriculum, normally after six and one-half years of study. The second combined course involves seven years of study, three in the Arts College and four in the Medical School, with the granting of the A.B. degree upon the completion of the first year of the Medical School, and of the M.D. degree upon graduation of the same. Naturally, whenever time and money permit students are urged to spend eight years to secure the degree of Doctor of Medicine by taking a full four year course in the Arts College before entering upon the professional work in the Medical School.

Thus, to-day at this University, the following avenues of approach or courses of study may be pursued, at the option of the student, to obtain the degree of Doctor of Medicine:—

1. Two years in the Arts College and four years in the Medical School leading to the degree, M.D. The minimum time required is six years.
2. Two and one-half years at the Arts College and four years in the Medical School, leading to two degrees, B.S. in Medicine and M.D. The time required is ordinarily six and one-half years which may be reduced by summer study to six calendar years.
3. Three years in the Arts College and four in the Medical School, leading to the degrees of A.B. and M.D. The time required is ordinarily seven years.
4. Four years in the Arts College and four in the Medical School, leading to the degrees of B.S. or A.B. and M.D. The time required is eight years.

The development of the educational requirements for the study of medicine at other institutions has been in the main similar to that outlined for the University of Michigan.

During this same period, namely since 1890, the requirements for admission to and graduation from the College of Pharmacy of this University have likewise been rapidly advanced. In 1890 the college course in pharmacy was only two years in length and the requirements for admission were correspondingly meager, the chief emphasis being placed upon practical experience rather than upon educational preparation as evidenced by attendance upon or graduation from high school.

With the growth of manufacturing pharmacy and the rapid development of medicine, already referred to, the demand for better trained pharmacists became so insistent that it was soon necessary to offer superior facilities for the study of pharmacy. Accordingly, in 1896 a four year course was introduced having the same requirements for admission as for the courses leading to the scientific degrees in the Arts College. Also from time to time the educational standards were advanced for the two year course so that since 1912 high school graduation has been required of all students seeking admission to the College of Pharmacy as candidates for degrees. Furthermore, since 1917 the minimum college course has been three years in length. The number of students pursuing the longer four year course, which was first organized in 1896, is constantly increasing.

For a period of years it has been observed that annually a number of students who have been enrolled for several years on the four year course in the College of Pharmacy decided to change from pharmacy to medicine and therefore transferred their credits to the Medical School. In most cases these students had not progressed far enough in the College of Pharmacy to warrant the administrative officers to urge them to finish the course in pharmacy and obtain a degree from the College.

Such students have, however, generally given a splendid account of themselves in the various courses in the Medical School, especially in those involving a knowledge of pharmacy and pharmaceutical practice.

With such students in mind and also with the idea of providing another avenue of approach to the study of medicine primarily in view, a new combined curriculum has been planned based upon a four year course in pharmacy and the regular medical program. Since the instruction in certain subjects, such as bacteriology, hygiene, pharmacology, and physiological chemistry overlap both courses it is possible to reduce the time necessary to meet all the requirements for the two degrees, namely, Bachelor of Science in Pharmacy and Doctor of Medicine, from eight to seven years.

Students desiring to pursue this combined curriculum enroll in the College of Pharmacy and for three years pursue courses under the supervision of that college. After earning 96 hours of credit and at least one and one-third times as many points as hours, these students also enroll in the Medical School provided their work has included the following:

Rhetoric, 6 hours, including courses 1 and 2
French and German, 16 hours of either one. (Each unit of French or German offered in the preparatory work reduces by four hours the requirement in that language. One year of foreign language, however, must be taken in college.)
Physics, 8 hours
Chemistry, 32 or 28 hours
Zoology, 4 hours
Botany, 4 hours
Mathematics, 2 hours
Pharmacy, 24 hours.

Two units of Latin must have been offered for admission to the College of Pharmacy by all students on this combined curriculum.

The above instruction will ordinarily be distributed as follows:

FIRST YEAR.

First Semester.	Hours.	Second Semester.	Hours.
General and Inorganic Chemistry	4	General and Inorganic Chemistry	4
Pharmaceutical and Chemical Problems	4	Pharmaceutical Technique and Manufacturing Pharmacy	4
Rhetoric I	3	Rhetoric II	3
French or German I	4	French or German II	4
		Mathematics	2

SECOND YEAR.

First Semester.		Second Semester.	
Qualitative Analysis	5	Quantitative Analysis	5
General Physics I	4	General Physics II	4
French or German III	4	French or German IV	4
Principles of Animal Biology	4	Theoretical and Physical Chemistry	4

THIRD YEAR.

First Semester.		Second Semester.	
Organic Chemistry	5	Organic Chemistry	5
Prescription Study and Practice	3	Pharmacognosy	5
Elements of Botany	4	U. S. Pharmacopœia and National Formulary	4
Pharmaceutical Chemistry	3		
History of Pharmacy	1	Electives	

The instruction during the first three years has been planned so as to give the student an adequate training in pharmacy and at the same time meet all the requirements demanded for admission to the study of medicine. Double registration, that is, in the College of Pharmacy and in the Medical School, is effective during the fourth and fifth years. During this period the students pursue courses in anatomy, bacteriology, clinical microscopy, hygiene and public health, histology, pharmacology, physiological chemistry, and physiology, all of which are given in the Medical School. After the completion of these courses, normally at the end of the fifth year, the degree of Bachelor of Science in Pharmacy will be conferred. Thereafter the student enrolls only in the Medical School and two years later should be ready for graduation with the degree of Doctor of Medicine.

The new program will become effective at once. At the beginning the number of prospective students of medicine pursuing this combined course will probably not be very large. It is, however, believed that when the advantages of the kind of preparation for the study of medicine offered by this well balanced program of study under the supervision of the College of Pharmacy becomes more fully appreciated, this new combined curriculum will attract an increasing proportion of the students preparing to study medicine at this University. Naturally it will take a decade or more to determine whether or not the new program is superior to the older combined curricula. The members of the faculty of the College of Pharmacy are, however, confident that time will fully justify their faith in the new curriculum. They believe that a distinct step forward has been taken toward bringing pharmacy and medicine closer together, which relationship should prove mutually beneficial.

COLLEGE OF PHARMACY,
UNIVERSITY OF MICHIGAN,
MARCH 1, 1924.

"MENTAL AND SPIRITUAL HEALING."

An account of a "Benjamin Franklin Fund" of London appeared in the press several months ago; also reports in print and otherwise of a book on "Mental and Spiritual Healing" for which an award from the above fund had been made to Pierson W. Banning. Under "Propaganda for Reform," p. 1063, *Journal A. M. A.*, March 27, 1924, the book is reviewed. The concluding paragraph expresses the opinion that the so-called Benjamin Franklin Fund does not exist, and that the award is a hoax.

ATTEMPT TO STEAL THE INTERNATIONAL STANDARD METER.

According to Paris despatches an attempt to steal the international standard meter, on February 28th, was foiled. The bureau houses, in addition to the Standard Meter, a number of delicate instruments and standards, all made of platinum, iridium or other valuable metals.

ONTARIO COLLEGE OF PHARMACY CANCELS LICENSE OF A GRADUATE.

The Ontario College of Pharmacy has cancelled the license of a Toronto druggist who has been twice convicted of selling liquor in violation of the law which provides that on a second conviction the offender shall be deprived of his license for two years. During this time he is prohibited from selling drugs in his own name, managing a drug store or becoming associated with any company dealing in drugs.

LICENSES REVOKED BY TEXAS BOARD OF PHARMACY.

Licenses of two registered pharmacists of the State were revoked at an executive meeting of the Texas State Board of Pharmacy. One of the druggists was charged with "gross misconduct," while the other was charged with violation of the Harrison narcotic act and is, at the present time, serving a sentence in Leavenworth penitentiary.

PHARMACEUTICAL FORMULAS

PROPOSED FOR "BOOK OF UNOFFICIAL FORMULAS, A. PH. A."

The formulas heretofore published will be found in Volume I, JOURNAL A. PH. A., pp. 169, 366, 505, 637, 760 and 1307; Volume V, pp. 309, 422, 529, 631, 748, 862, 991 (see also p. 1129), 1126, 1265 and 1397; Volume VI, pp. 79, 194, 298, 393, 486, 563, 643, 729 and 823. See also Volume X, pp. 292, 382, 468, 534, 628; Volume XI, pp. 551, 624.

For list of committee members and committees see April issue, 1921, p. 292; also refer to Roster on p. X of this issue. Suggestions for formulas, and comments on those published are invited. They may be sent to a member of the Committee or to Chairman J. Leon Lascoff, 1223 Lexington Ave., New York, N. Y.

Contributed by Chairman J. Leon Lascoff.

No. 715.

CAMPHORATED EMULSION OF ALMOND.

Emulsum Amygdalæ Camphoratum.

Camphor	4.0
Acacia	20.0
Alcohol	6.0
Sugar	100.0
Emulsion of Almond	1000.0

No. 716.

CAMPHORATED TOOTHACHE DROPS.

Camphor	10.0
Oil of Cajuput	20.0
Chloroform	40.0
Oil of Clove	1.0

No. 717.

FRECKLE LOTION.

Zinc Sulphocarbolate	1.0
Glycerin	20.0
Rose Water	70.0
Alcohol	8.0
Perfumed Spirit, N. F.	1.0
Spirit of Camphor	1.0

No. 718.

EMULSION OF SULPHUR.

(Emulsum Sulphuris.)

Precipitated Sulphur	10.0
Water	10.0
Alcohol, 90%	10.0
Glycerin	5.0

No. 719.

BENZYL BENZOATE MIXTURE.

(Special.)

Benzyl Benzoate, 20% solution	0.6
Acacia	0.3
Compound Tincture of Cardamom, Arom. Syrup of Eriodictyon of each	15.0

Emulsify the benzyl benzoate with the acacia and incorporate the other ingredients.

No. 720.

"OIL OF ZINC OXIDE."

Zinc Oxide	25.0
Olive Oil	25.0

No. 721.

CREDE'S COLLARGOL PASTE.

Collargol	5.0
Starch	20.0
Zinc Oxide	25.0
Lanolin	25.0
Yellow Petrolatum	25.0

No. 722.

LEAD ACETATE OINTMENT.

(Improved Formula for Unguentum Plumbi Acetatis.)

Lead Acetate	1.5
Water	5.0
Ointment	100.0

No. 723.

MUCILAGE OF ALTHÆA.

Althæa	6.0
Cold Water	120.0

Add the sliced althæa to the water, let stand a quarter of an hour, then strain without pressing.

No. 724.

LAVENDER WATER.

Oil of Lavender	120.0
Oil of Bergamot	30.0
Oil of Orange	7.5
Oil of Neroli	2.0
Coumarin	2.0
Tincture Benzoin	30.0
Water	500.0
Alcohol	4000.0

No. 725.

DRENCH FOR COLIC.

(Veterinary.)

Ether	60.0
Castor Oil	500.0

Mix and give all at one time.

No. 726.

AROMATIC WATER.

(Aqua Aromatica Spirituosa.)

Oil of Clove, Oil of Cassia, Oil of Lemon, Oil of Fennel, Oil of Lavender, Oil of Mace, Oil of Peppermint, Oil of Rosemary, Oil of Sage,	of each	2.0
Alcohol		600.0
Water, enough to make		1000.0

Allow to stand three days; then filter.

No. 727.

BRILLIANTINE.

I—Solid.

Suet	100.0
Spermaceti	50.0
Castor Oil	50.0
Oil of Bitter Almond	1.5
Oil of Cloves	3.0
Oil of Bergamot	6.0

No. 728.

II—Semi-solid.

Olive Oil	100.0
Spermaceti	30.0
Oil of Bergamot	2.5
Oil of Clove	3.0
Oil of Rose Geranium	1.0

No. 729.

III—Liquid.

Liquid Petrolatum	800.0
Almond Oil	200.0
Chlorophyll	0.5
Ionone, beta	3.0
Oil Santal	1.0
Methyl-Heptin Carbonate	0.1
Irone	1.0
Oil Cananga, terpeneless	2.0

Rub down the chlorophyll in a warmed mortar, with the fixed oil. Allow to settle, pour off bright and add to the petrolatum. Mix in the perfumes.

No. 730.

IV—Liquid.

Liquid Petrolatum	1000.0
Oil Rose, synthetic	2.5
Phenylethyl Isobutyrate	0.5
Oil of Patchouli	0.1

No. 731.

HEADACHE COLOGNE.

(Spiritus Cephalicus.)

I.

Perfumed Spirit, N. F.	60.0
Acetic Ether	7.5
Stronger Ammonia Water	1.0
Oil of Peppermint	0.6

No. 732.

II.

Perfumed Spirit, N. F.	50.0
Menthol	2.0

No. 733.

III.

Menthol	10.0
Camphor	5.0
Oil of Eucalyptus	2.0
Oil of Clove drops	10.0
Chloroform	2.5
Oleo-Balsamic Mixture, N. F.	50.0

No. 734.

SPIRIT OF SCURVY GRASS.

(Spiritus Cochleariæ.)

Oil of Cochlearia	8.0
Alcohol	1000.0

No. 735.

TINCTURE OF BIRCH TAR.

(Tinctura Rusci.)

Oil of Birch, empyreumatic		20.0
Alcohol, Ether, Oil of Lavender, Oil of Rosemary, Oil of Rue,	of each	30.0
		1.0

Mix; let stand one week and filter.

No. 736.

COMPOUND CALAMINE OINTMENT.

(Unguentum Calaminæ Compositum.)

Olive Oil		100.0
Yellow Wax		25.0
Powdered Bolus, white Calamine, Lead Oxide,	of each	10.0
Camphor		1.0

Melt the wax and incorporate with the olive oil, add the powdered bolus, calamine and litharge; when nearly cold add the camphor.

No. 737.

STRONGER ICHTHYOL OINTMENT.

(Unguentum Ichthyoli Fortior "*Unna.*")

Ichthyol,		
Water,	of each.....	10.0
Lanolin.....		30.0

No. 738.

UNNA'S COOLING OINTMENT.

(Unguentum Refrigerans, "*Unna.*")

Lanolin,	
Lard,	
Rose Water,	of each....equal parts

No. 739.

HICCUP MIXTURE.

Sodium Bicarbonate.....	16.0
Tincture of Nux Vomica.....	4.0
Spirit of Chloroform.....	8.0
Tincture of Capsicum.....	4.0
Compound Tincture of Gentian.....	150.0

Dose: One teaspoonful.

No. 740.

EMULSION OF CREOSOTE CARBONATE.

Creosote Carbonate.....	8.0
Acacia.....	12.0
Expressed Oil of Almond.....	15.0
Peppermint Water, enough to make..	100.0

No. 741.

EMULSION OF PETROLATUM WITH PHENOLPHTHALEIN.

(Emulsio Petrolei cum Phenolphthaleino.)

Liquid Petrolatum.....	30.0
Acacia.....	8.0
Tragacanth.....	1.3
Spirit of Chloroform.....	2.5
Tincture of Lemon Peel.....	2.0
Elixir Saccharin.....	0.3
Phenolphthalein.....	1.5
Water, enough to make.....	100.0

The same emulsion can be prepared with Agar-Agar by reducing the amount of Acacia and Tragacanth.

No. 742.

EYEBROW POMADE.

Petrolatum.....	100.0
Tincture of Cantharides.....	6.0
Oil of Lavender.....	2.0
Oil of Rosemary.....	2.0

No. 743.

CAMPHORATED VINEGAR (Hager).

(Acetum Camphoratum.)

Camphor.....	10.0
Alcohol.....	90.0
Vinegar, enough to make.....	1000.0

No. 744.

VINEGAR OF CANTHARIDES (Hager).

(Acetum Cantharidis.)

Powdered Cantharides.....	60.0
Powdered Euphorbium.....	10.0
Vinegar.....	500.0

Macerate and filter.

No. 745.

CARMINATIVE WATER (Hager).

(Aqua Carminativa.)

Oil of Orange Peel,		
Oil of Caraway,		
Oil of Fennel,		
Oil of Coriander,		
Oil of Lemon Peel,		
Oil of Spearmint,	of each.....	1.0
Alcohol.....		100.0
Chamomile Water.....		900.0

No. 746.

HALLER'S ACID ELIXIR.

(Mistura Sulphurica Acida, N. F. III.)

Alcohol.....	750.0
Sulphuric Acid.....	250.0

No. 747.

ELIXIR OF SALICYLIC ACID.

(Elixir Acidi Salicylici, N. F. III.)

Salicylic Acid.....	35.0
Potassium Citrate.....	125.0
Glycerin.....	500.0
Aromatic Elixir, enough to make.....	1000.0

No. 748.

MATHIOLIN'S ELIXIR OF LIFE.

(Elixir Vitae, Matthiolin.)

Aromatic Water,		
Cinnamon Water,	of each.....	100.0
Oil of Nutmeg,		
Oil of Fennel,		
Oil of Anise,		
Oil of Peppermint,	of each, drops	3
Sugar.....		24.0
Tincture of Cinnamon.....		20.0
Aromatic Tincture, N. F.....		30.0

UNITED STATES PHARMACOPŒIA.

TENTH REVISION.

ABSTRACT OF PROPOSED CHANGES WITH NEW STANDARDS AND DESCRIPTIONS.*

PART VI.

INORGANIC CHEMICALS AND BIOLOGICAL PRODUCTS.

The Pharmacopœial Convention of 1920 recommended that abstracts of changes proposed for the U. S. P. X. and new standards and descriptions be published before final adoption, that those who are not members of the Revision Committee may have an opportunity for comment and criticism.

In compliance with this recommendation, the following abstracts are submitted. The nomenclature and the exact wording of the text do not necessarily represent that to be finally adopted and doses have not been appended.

Additional inorganic chemicals were published in Part I of the Abstracts and will be mailed upon request.

Comments should be sent to the Chairman of the Revision Committee,

E. FULLERTON COOK,
636 South Franklin Square,
Philadelphia, Pa.

INORGANIC CHEMICALS.

Acidum Hydriodicum Dilutum.—No material change.

Acidum Hydrochloricum.—No material change.

Acidum Hydrochloricum Dilutum.—No material change.

Acidum Hypophosphorosum.—No material change.

Acidum Phosphoricum.—Nitric acid test changed: "Mix 5 cc. of the dilution with an equal volume of ferrous sulphate T. S. and superimpose the mixture upon 3 cc. of sulphuric acid contained in a test tube. The zone of contact does not assume a brown or brownish red color (*nitrate*)."

Acidum Phosphoricum Dilutum.—Nitric acid test changed as in "Acidum Phosphoricum."

Acidum Sulphuricum Aromaticum.—Specific gravity changed to "about 0.94 at 25° C."

Assay changed to read—"Transfer about 5 cc. of Aromatic Sulphuric Acid, accurately weighed, to a tall beaker. Add exactly 30 cc. of normal sodium hydroxide and evaporate the mixture to complete dryness on a sand bath. Dissolve the residue in 30 cc. of distilled water and titrate the excess of alkali with normal sulphuric acid, using methyl orange T. S. as indicator. Each cc. of normal sodium hydroxide corresponds to 0.049045 Gm. of H_2SO_4."

Alumen.—Identity test for Potassium Alum made more definite: "The addition of 10 cc. of sodium bitartrate T. S. to 5 cc. of a saturated aqueous solution of Potassium Alum produces within thirty minutes, a white, crystalline precipitate."

Alumen Exsiccatum.—No material change.

Ammonii Benzoas.—No material change.

Ammonii Bromidum.—Iodide test changed to: "Add a few drops of ferric chloride T. S. and 1 cc. of chloroform to 10 cc. of an aqueous solution of the salt (1 in 20) and shake the mixture. The chloroform does not acquire a violet tint (*iodide*)."

Ammonii Carbonas.—No material change.

Ammonii Salicylas.—No material change.

Aqua Destillata.—Process of manufacture omitted—No material change in tests.

Arseni Iodidum.—No material change.

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J. H. BEAL,
801 W. Nevada Street,
Urbana, Illinois.

Barii Sulphas.—Barium Sulphate ($BaSO_4$) freed from soluble barium salts.

In prescribing Barium Sulphate, to avoid confusion with the poisonous barium sulphide or sulphite the title should never be abbreviated.

Barium Sulphate is a fine, white, odorless, tasteless and relatively light powder, free from grittiness.

It is insoluble in water and organic solvents and in aqueous solutions of acids and alkalies.

Mix 0.5 Gm. of Barium Sulphate with 2 Gm. each of anhydrous sodium carbonate and anhydrous potassium carbonate, heat the mixture in a crucible until fusion is complete, treat the resulting fused mass with hot distilled water, and filter. Acidulate a portion of the filtrate with hydrochloric acid, and add 1 cc. of barium chloride solution. A white precipitate forms (*sulphate*). Dissolve a portion of the well-washed residue in acetic acid and add 1 cc. of potassium chromate solution. A yellow precipitate forms (*barium*). Dissolve another portion of the well-washed residue in a small amount of hydrochloric acid, place a drop of the solution on the loop of a clean platinum wire, and ignite in a non-luminous flame. A green color is imparted to the flame (*barium*).

Boil 10 Gm. of Barium Sulphate with 100 cc. of 1 per cent. hydrochloric acid for ten minutes and add sufficient distilled water to restore the original volume. During boiling there should be no evolution of hydrogen sulphide recognizable by the darkening of lead acetate paper (*sulphides*). Cool the mixture and filter through a paper which has been washed previously with a mixture of 10 cc. of diluted hydrochloric acid and 90 cc. of distilled water, returning the first portions, if necessary, until a clear filtrate is obtained. Evaporate 50 cc. of the filtrate to dryness on a water-bath, add two drops of hydrochloric acid, and 10 cc. of hot distilled water, filter through an acid-washed filter, wash with 10 cc. of hot distilled water and evaporate the filtrate to dryness in a tared dish on the water-bath. The residue when dried to constant weight, at from 100° to 110° C., does not exceed 0.3 per cent. (*limit of water-soluble and dilute acid-soluble non-volatile material*). Treat the residue with 10 cc. of distilled water, filter the solution through a filter previously washed with 1 per cent. of hydrochloric acid and add 0.5 cc. of diluted sulphuric acid. No turbidity develops within one-half hour (*soluble barium salts*).

Boil 1 Gm. of Barium Sulphate with a mixture of 3 cc. of nitric acid and 5 cc. of distilled water during five minutes. Filter and add to the warm filtrate an equal volume of ammonium molybdate T. S. No yellow precipitate is formed (*phosphate*).

Digest 1 Gm. of Barium Sulphate with 20 cc. of distilled water during five minutes. The latter remains neutral to litmus paper (*free acid or alkali*).

Boil 5 Gm. of Barium Sulphate with 50 cc. of diluted acetic acid and filter while hot. The filtrate does not respond to the test for *heavy metals* (see Part II, Test No. —).

Triturate 2 Gm. of Barium Sulphate with 5 cc. of concentrated hydrochloric acid, and add 10 cc. of a freshly made, saturated solution of stannous chloride. No dark coloration occurs within one-half hour (*arsenic*).

Bismuthi Subcarbonas.—Alkalies and alkali earth limit raised from 0.003 to 0.005.

Bismuthi Subnitras.—Test for alkalies altered to: "Boil 1 Gm. of Bismuth Subnitrate with 20 cc. of a mixture of equal parts of acetic acid and distilled water and cool the solution. A clear solution results. Add 2 cc. of diluted hydrochloric acid, remove the bismuth by the addition of hydrogen sulphide, boil the mixture and filter. The latter filtrate leaves not more than 0.003 Gm. of residue on evaporation and gentle ignition (*zinc, iron, alkali earth and alkalies*)."

Test for chloride added. "One Gm. of the salt shows no more *chloride* than corresponds to 0.5 cc. of fiftieth-normal hydrochloric acid. (See turbidimetric test, page —.)"

Bismuthi Subsalicylas.—No material change.

Calcii Bromidum.—No material change.

Calcii Carbonas Praecipitatus.—Test for magnesium added. "After precipitating with ammonium oxalate T. S., filter. The filtrate, on evaporation and ignition, leaves not more than 0.004 Gm. of fixed residue (*magnesium or alkalies*)."

Test for heavy metals is omitted.

Test for soluble impurities omitted.

Calcii Glycerophosphas.—Added test—"Dry about 3 Gm. of Calcium Glycero phosphate to constant weight, at about 130° C., weigh accurately, dissolve in 250 cc. of distilled water and titrate first with half-normal sodium hydroxide, using phenolphthalein T. S. as indicator to a

slight pink color (*added acids*) and then titrate with half-normal hydrochloric acid, using methyl-orange as indicator to a slight, yet distinct pink. Each cc. of half-normal hydrochloric acid corresponds to 0.10508 Gm. of $CaC_3H_7PO_6$."

Calx.—Test for magnesium and alkalies added.

Chromii Trioxidum.—No material change.

Creta Præparata.—No material change.

Ferri Sulphas Granulatus.—No material change.

Hydrargyri Chloridum Mite.—No material change.

Hydrargyri Iodidum Flavum.—No material change.

Hydrargyri Oxidum Flavum.—No material change.

Hydrargyrum cum Creta.—No material change.

Iodum.—Test for chloride and bromide changed as follows:

"Triturate 0.5 Gm. of Iodine with 20 cc. of distilled water and filter the solution. To half of this filtrate add, drop by drop, sulphurous acid (*free of chloride*), previously diluted with several volumes of distilled water, until the iodine color just disappears. Add 5 cc. of ammonia water, and follow with 5 cc. of silver nitrate T. S., adding it in small portions at a time. Filter and acidulate the filtrate with nitric acid. The turbidity produced is not greater than that produced in a control test made with the same quantities of reagents, to which 0.1 cc. of fiftieth-normal hydrochloric acid has been added, but omitting the addition of sulphurous acid (*chloride or bromide*)."

Liquor Acidi Arsenosi.—No material change.

Liquor Calcis.—Manufacturing directions changed to the following:

Calcium oxide, about..... 25 Gm.
Water, *a sufficient quantity.*

Slake the calcium oxide by the addition of about 50 cc. of warm water. Transfer the mixture to a bottle having a capacity of about 4000 cc., and add 950 cc. of water. Agitate the mixture occasionally during half an hour, then allow it to settle and decant, and reject the clear liquid. To the residue add sufficient water to fill the bottle, agitate it thoroughly, stopper it and set it aside, in a cool place.

Pour off the clear liquid when required for use.

Liquor Ferri Chloridi.—Formula and manufacturing directions omitted. Nitrate test and salts of fixed alkali test changed and a test added for zinc, lead or copper as follows:

"Precipitate the iron completely from a weighed portion of about 4 cc. of the Solution, previously diluted with 100 cc. of distilled water, by adding an excess of ammonia T. S. The filtrate is colorless and one-half of the filtrate does not yield a precipitate with hydrogen sulphide T. S. (*zinc, lead or copper*).

The fixed residue obtained upon evaporation and ignition of the other half of the filtrate from the preceding test does not weigh more than 0.1 per cent. of the amount of Solution originally taken (*salts of the fixed alkalies*).

Mix 1 cc. of the Solution with 10 cc. of ferrous sulphate T. S. and superimpose upon 5 cc. of sulphuric acid contained in a test tube. The line of contact does not assume a brown or reddish brown color (*nitrate*)."

Liquor Ferri et Ammonii Acetatis.—Rubric given—"It contains Ammonium Acetate corresponding to not less than 0.6 per cent. nor more than 0.8 per cent. of ammonia (NH_3) and not less than 0.16 per cent. nor more than 0.20 per cent. of Iron (Fe)."

Assay for ammonia—"Weigh accurately about 25 cc. Solution of Iron and Ammonium Acetate, transfer completely with the aid of distilled water to a distilling flask and add sufficient distilled water to make about 200 cc. Add 20 cc. of 20 per cent. sodium hydroxide solution and distil over about 150 cc. receiving the distillate in 40 cc. of half-normal sulphuric acid. Titrate the excess of acid with half-normal sodium hydroxide, using methyl orange T. S. as indicator. Each cc. of half-normal acid corresponds to 0.008515 Gm. of NH_3."

Assay for iron—"Weigh accurately about 25 cc. of Solution of Iron and Ammonium Acetate and transfer it completely to a dish with the aid of a little distilled water. Evaporate to dryness and gently ignite. Heat the residue with 10 cc. of hydrochloric acid and when all of the iron has dissolved, add 10 cc. of solution of hydrogen dioxide and evaporate to dryness on a water-bath. Add 5 cc. of hydrochloric acid, warm until a solution is obtained and transfer the solution with the aid of about 30 cc. of distilled water to a glass-stoppered flask. Add about 2 Gm. of

potassium iodide, allow to stand for thirty minutes at about 40° C., cool and titrate the liberated iodine with tenth-normal sodium thiosulphate, using starch T. S. as indicator. Each cc. of tenth-normal sodium thiosulphate corresponds to 0.005584 Gm. of Fe."

Liquor Hydrogenii Dioxide.—No material change.

Liquor Iodi Compositus.—No material change.

Liquor Magnesii Citratis.—Citric Acid in the formula increased from 33 to 35 Gm. The calcium test changed to read: "Dilute 2 cc. of the Solution with distilled water to 45 cc., add 5 cc. of ammonium oxalate T. S. and mix well. The resulting turbidity, if any, is not greater than the turbidity in a control test made with 1 cc. of a solution prepared as follows: Dissolve 1 Gm. of official calcium carbonate, which has been dried at 200° C. to constant weight before weighing, in 1 cc. of acetic acid and 5 cc. of distilled water. Boil for about one minute and dilute with distilled water to 100 cc. (*calcium*)."

Assay added for minimum limits of free and total citric acid:

"Dilute 5 cc. of the Solution with 10 cc. of distilled water and titrate the liquid with half-normal sodium hydroxide, using phenolphthalein as indicator. Not less than 4.5 cc. of the alkali should be required for neutralization. Evaporate the neutralized liquid, transfer it after concentration to a porcelain crucible, evaporate it to dryness and proceed as directed under the assay for alkali salts of organic acids (Part II, Test No. —). Not less than 13.5 cc. of half-normal sulphuric acid should be consumed (*minimum limits for free and total citric acid*)."

Liquor Potassii Arsenitis.—No material change.

Liquor Potassii Citratis.—No material change.

Liquor Sodæ Chlorinatæ.—Manufacturing directions changed so that the clear filtrate is tested with sodium carbonate T. S., and if necessary more monohydrated sodium carbonate is added to the preparation.

Liquor Sodæ Chlorinatae Dilutus.—Carrel-Dakin Solution.

Diluted Solution of Chlorinated Soda is an aqueous solution of chlorine compounds of sodium containing not less than 0.45 per cent. nor more than 0.50 per cent. of available chlorine. Preserve the solution in well-stoppered bottles, preferably for not more than 7 days, in a cool place protected from light.

Chlorinated Lime	20 Gm.
Exsiccated Sodium Phosphate	20 Gm.
Water, *a sufficient quantity*, to make	1000 cc.

Triturate the chlorinated lime with 400 cc. of water gradually added, until a uniform mixture results. Dissolve the exsiccated sodium phosphate in 400 cc. of water, heated to 50° C. and add this solution to the mixture of chlorinated lime. Shake the mixture thoroughly and allow it to stand for 15 minutes. Transfer the mixture gradually to a filter, returning the first portions of filtrate until it runs through clear, and when no more liquid drains from the filter, wash the precipitate with sufficient water to make the product measure 1000 cc.

Diluted Solution of Chlorinated Soda is a colorless or faintly yellow liquid, possessing a slight odor and conforming to the following requirements.

Add about 0.02 Gm. of powdered phenolphthalein to 20 cc. of Diluted Solution of Chlorinated Soda. No red color develops on agitation (*excessive alkalinity*).

Forcefully add about 0.5 cc. of phenolphthalein T. S. to 5 cc. of the Solution contained in a test tube. A red color should form and soon disappear (if there is no red flash, the *alkalinity is too low*).

Assay.—Add 50 cc. of distilled water to 25 cc. of the solution, accurately measured, followed by 1 Gm. of potassium iodide, and 5 cc. of acetic acid and titrate with tenth-normal sodium thiosulphate using starch T. S. as indicator. Each cc. of tenth-normal sodium thiosulphate corresponds to—Gm. of NaOCl.

Liquor Zinci Chloridi.—The formula is omitted. Tests not materially changed.

Magma Magnesiæ.—Rubric changed to read "yields not less than 7.0 per cent. of $Mg(OH)_2$."

Directions and formula changed.

Magnesium Sulphate	500 Gm.
Sodium Hydroxide	165 Gm.
Distilled water, *a sufficient quantity*, to make	1000 cc.

Dissolve the magnesium sulphate in sufficient distilled water to make 650 cc., place this in a vessel of about 5000 cc. capacity and heat to boiling. Dissolve the sodium hydroxide in sufficient distilled water to make 1000 cc., add this slowly to the boiling solution of magnesium sulphate and continue the boiling for thirty minutes. Transfer the mixture to a cylindrical container of not less than 5000 cc. capacity and fill with hot distilled water. Allow it to stand until separation has occurred and remove the supernatant liquid. Continue washing with hot distilled water until the sulphates are practically eliminated, as shown by testing 20 cc. of the supernatant liquid, acidulated with hydrochloric acid, with barium chloride T. S. Concentrate the Magma by evaporation until it contains 7 per cent. of magnesium hydroxide.

Magnesii Carbonas.—Test for iron changed to the following:

"Dissolve 2.5 Gm. of Magnesium Carbonate in 50 cc. of diluted hydrochloric acid and 200 cc. of distilled water. The solution is colorless. Transfer 50 cc. of this solution to a 50 cc. graduated, glass-stoppered cylinder and add 0.2 cc. of potassium ferrocyanide T. S. After mixing well, the color produced in the solution, if any, when viewed downward against a white surface is not greater than the color of a control solution prepared as follows:

"Dilute 0.2 cc. of ferric chloride T. S. with sufficient distilled water to make 1000 cc. Transfer 25 cc. of this solution to another 50 cc. graduated glass-stoppered cylinder, add 10 cc. of diluted hydrochloric acid and sufficient distilled water to make 50 cc. Then add 0.2 cc. of potassium ferrocyanide T. S. (The two cylinders used must be matched, be of practically colorless glass and have the same internal diameter) (*iron*)."

Magnesii Oxidum.—No material change.

Magnesii Oxidum Ponderosum.—No material change.

Magnesii Sulphas.—No material change.

Nitrogenii Monoxidum.—No material change.

Oxygenium.—Rubric changed from "not less than 95 per cent." to "not less than 98 per cent. by volume of O."

Added test—"Pass 2000 cc. of oxygen through 100 cc. of a freshly prepared starch—potassium iodide T. S. The color of the liquid is not changed (*oxidizing substances*)."

Phosphorus.—Chloroform solubility statement changed from "1 Gm. in 17 cc." to "1 Gm. in 40."

Plumbi Acetas.—No material change.

Potassii Chloras.—No material change.

Potassii Bromidum.—No material change.

Potassii Iodidum.—Test for nitrate or nitrite added as follows:

"Add 5 cc. of potassium hydroxide T. S. and about 0.2 Gm. of aluminum wire to a solution of 1 Gm. of Potassium Iodide, in 5 cc. of distilled water, contained in a test tube of about 40 cc. capacity. Insert a pledget of purified cotton in the upper portion of the test tube, and place a piece of moistened red litmus paper over its mouth. On heating the tube and contents upon a water-bath for fifteen minutes, no blue coloration of the paper is discernible (*nitrate or nitrite*)."

Pulvis Effervescens Compositus.—No material change.

Sodii Acetas.—Limit of alkalinity required as follows:

"Dissolve 2 Gm. of Sodium Acetate in 20 cc. of distilled water and add 2 drops of phenolphthalein T. S. The pink color produced is discharged by the addition of 0.1 cc. of tenth-normal sulphuric acid (*limit of alkalinity*)."

Sodii Benzoas.—The precipitate formed upon the addition of sulphuric or hydrochloric acid to a concentrated aqueous solution of Sodium Benzoate must, after being thoroughly washed, conform to the test for purity given under *Acidum Benzoicum*.

Sodii Biphosphas.—It contains not less than 82 per cent. of anhydrous sodium phosphate (*mono-sodium ortho-phosphate*) corresponding to not less than 94 per cent. of the crystalline salt [$NaH_2PO_4.H_2O$].

Large, colorless, transparent crystals or a white granular crystalline powder. It is odorless and slightly deliquescent.

It is freely soluble in water and practically insoluble in alcohol, chloroform and ether.

At 100° C. Sodium Biphosphate loses its water of hydration (13.04 per cent.) and at 210° C. it is converted into disodium dihydrogen pyrophosphate ($Na_2H_2P_2O_7$). At still higher temperatures it is changed into a mixture of sodium metaphosphate ($NaPO_3$) and modifications of sodium metaphosphate.

An aqueous solution of Sodium Biphosphate is acid to litmus paper and effervescence results upon the addition of sodium carbonate. To a non-luminous flame it imparts a yellow color. Ammonium molybdate or silver nitrate T. S. produces in an aqueous solution of the salt (1 in 20) yellow precipitates which are soluble in ammonia water.

Dissolve 2 Gm. of Sodium Biphosphate in 40 cc. of distilled water and add 1 drop of methyl orange T. S. If the solution is pink it requires not more than 0.3 cc. of normal sodium hydroxide to discharge the pink color (*free acid*). If the solution is yellow, it requires not more than 0.3 cc. of normal sulphuric acid to render it pink (*disodium phosphate*).

An aqueous solution of the salt (1 in 20) does not become turbid when rendered slightly akaline to litmus paper with ammonia water (*aluminum, calcium, etc.*).

Dissolve 1 Gm. of the salt in 100 cc. of 1 per cent. hydrochloric acid. Ten cc. of this solution should not respond to the test for *heavy metals* (see Part II, Test No. —).

Dissolve 0.1 Gm. of the salt in 10 cc. of 10 per cent. sulphuric acid. The solution should not respond to the Test for *arsenic* (see Part II, Test No. —).

One Gm. of Sodium Biphosphate shows no more *chloride* than 0.2 cc. of fiftieth-normal hydrochloric acid, and 0.2 Gm. shows no more *sulphate* than corresponds to 0.5 cc. of fiftieth-normal sulphuric acid (see turbidimetric tests, page —).

Dry about 2 Gm. of the salt, accurately weighed, for one hour at 60° C. and then raise the temperature to 100° C. and maintain that temperature until it ceases to lose weight. The loss in weight should not exceed fifteen per cent. (*limit of water*).

Assay.—Dissolve about 2 Gm. of the salt, accurately weighed, in 10 cc. of distilled water, add 10 cc. of a cold saturated solution of sodium chloride and titrate the solution with normal sodium hydroxide, using phenolphthalein as indicator. Each cc. of normal sodium hydroxide corresponds to 0.12006 Gm. of NaH_2PO_4.

Dissolve about 0.15 Gm. of the salt, accurately weighed, in 10 cc. of distilled water and neutralize the solution with normal sodium hydroxide (free from chloride), using phenolphthalein T. S. as indicator. Then add 50 cc. of tenth-normal silver nitrate and agitate the mixture well. Gradually add zinc oxide (p. —), in small portions until the mixture is neutral to litmus paper and then dilute the mixture to 100 cc. with distilled water and filter through a filter which has not been previously moistened. Reject the first 20 cc. of filtrate, collect 50 cc. of the subsequent filtrate, add 2 cc. of nitric acid and 2 cc. of ferric ammonium sulphate T. S. and titrate with tenth-normal potassium thiocyanate to the production of a permanent red tint. Each cc. of normal sodium hydroxide corresponds to 0.1200 Gm. of Na_2HPO_4; each cc. of tenth-normal silver nitrate corresponds to 0.004 Gm. of Na_2HPO_4.

Sodii Bromidum.—No material change.

Sodii Carbonas Monohydratus.—Rubric changed to read—

"It contains, when rendered anhydrous by gentle ignition, not less than 99.5 per cent. of Na_2CO_3."

Moisture limit added—"Weigh accurately about 2 Gm. of Sodium Carbonate and heat to constant weight in a crucible at a low temperature. The loss does not exceed 15 per cent. (*moisture*)."

Sodii Chloridum.—No material change.

Sodii Iodidum.—Rubric directs the salt to be dried at 120° C. instead of 100° C.

Sodii Salicylas.—No material change.

Sodii Thiosulphas.—No material change.

Spiritus Aetheris Nitrosi.—The formula is omitted.

Added caution—"it is volatile and inflammable, and rapidly decomposes on exposure to light and air."

Spiritus Camphoræ.—Specific gravity added—"from 0.824 to 0.826 at 25° C."

Optical rotation added—"not less than 7.25°, in a 200 mm. tube at 25° C."

Spiritus Glycerylis Nitratis.—No material change.

Strontii Salicylas.—No material change.

Sulphur Lotum.—No material change.

Sulphur Præcipitatum.—No material change.

Sulphur Sublimatum.—No material change.

Syrupus Acidi Hydriodici.—Formula changed to a volumetric basis but with no change in strength.

Syrupus Ferri Iodidi.—No material change.

Tinctura Ferri Chloridi.—The requirement for aging is omitted.

Nitric acid test changed—"Mix 3 cc. of the Tincture with 10 cc. of ferrous sulphate T. S. and carefully pour this mixture upon 3 cc. of sulphurous acid contained in a test tube. The zone of contact does not assume a brown or reddish brown color (*nitrate*)."

Unguentum Hydrargyri.—Formula to be reported later.

Assay changed. "Mix about 1 Gm. of Mercurial Ointment, accurately weighed, in a suitable flask with 20 cc. of distilled water and 20 cc. of nitric acid, and warm the mixture gently until red fumes cease to be evolved and the solution is colorless. After cooling, add 100 cc. of distilled water and 2 cc. ferric ammonium sulphate T. S. and titrate with tenth-normal potassium thiocyanate until a permanent yellowish red color is produced. Each cc. of tenth-normal potassium thiocyanate corresponds to 0.01003 Gm. of Hg."

Unguentum Hydrargyri Dilutum.—Formula changed—

Mercurial Ointment	600 Gm.
Petrolatum	200 Gm.
Ointment	200 Gm.
To make	1000 Gm.

Mix the ingredients thoroughly.

Assay similar to that under "*Unguentum Hydrargyri.*"

Zinci Chloridum.—No material changed.

Zinci Oxidum.—Test for heavy metals omitted but a special test for copper and lead added as follows: "Add 2 Gm. of Zinc Oxide to 5 cc. of distilled water, and then add 25 cc. of diluted sulphuric acid and heat on a water-bath with constant stirring for five minutes. The resulting solution should be colorless and free from opalescence or turbidity (*copper or lead*)."

Add 2 Gm. of Zinc Oxide to 20 cc. of distilled water, and after stirring well, add 5 cc. of glacial acetic acid and warm upon a water-bath until solution is effected. The addition of 5 drops of potassium chromate T. S. produces no turbidity nor precipitate (*lead*).

Zinci Stearas.—No material change.

BIOLOGICAL PRODUCTS.

Virus Vaccinicum.—Temperature caution altered—Smallpox Vaccine loses potency rapidly, even at moderate temperatures. It must therefore be kept at the lowest possible temperature, preferably well below 0° C., and never above 12° C.

Added test for animals, "Animals used for propagating Smallpox Vaccine must have been previously subjected to a tuberculin test."

The bacterial content of Smallpox Vaccine is also determined.

Serum Antidiphthericum.—deleted.

Serum Antidiphthericum Purificatum.—Potency—Changed from 250 antitoxic units per cc. to 350 units.

Temperature—It must be kept "between 4.5° C. and 20° C." instead of "between 4.5° and 15° C."

Color—of a faint brownish, yellowish or greenish color.

Cresol as a preservative is not to exceed 0.4 per cent.

Time limit for use—"This date is one year from date of issue from the manufacturing establishment if an excess of 20 per cent. over the minimum potency has been placed in the container, two years for a 30 per cent. excess, three years for a 40 per cent. excess, or four years for a 50 per cent. excess."

The label on the glass bottle, vial or syringe containing the antitoxin shall bear the lot number of the product.

Dose: Curative, 10,000 units—to be given intramuscularly, subcutaneously, or intravenously. Protective, 1000 units, to be given subcutaneously.

Serum Antidiphthericum Siccum—(deleted).

Serum Antitetanicum.—Potency—Changed from 100 units to 150 units per cc.

Temperature—To be kept between 0° and 15° C. instead of 4.5° and 15° C.

Cresol as a preservative is not to exceed 0.4 per cent.

Time limit for use—Same as for Serum Antidiphthericum Purificatum.

Inner label—Same as for Serum Antidiphthericum Purificatum.

Dose—*Average dose for man:* Protective, 1500 units, to be given subcutaneously. The concentrated product. Tetanus Antitoxin, should be used for the treatment of tetanus in man.

Average dose for horses: For treatment, 10,000 units, to be given intravenously. Protective, 500 units, to be given subcutaneously.

Serum Antitetanicum Purificatum.—Potency changed from 100 units to 300 units per cc.

Temperature, cresol content, time limit for use, and inner label the same as for Antitoxinum Diphthericum.

Dose—*Average dose for man:* For treatment, 10,000 units, to be given intraspinally, and 20,000 units to be given intravenously.

Protective, 1500 units, to be given subcutaneously.

Average dose for horses: For treatment, 10,000 units to be given intravenously.

Protective, 500 units to be given subcutaneously.

Serum Antitetanicum Siccum (deleted).

Aqua Destillata Sterilisata.—General directions changed—Transfer the necessary quantity of freshly distilled water, neutral to litmus paper, to containers of non-soluble glass, having a capacity of not over 1000 cc. each. Stopper the containers with pledgets of purified cotton, wrapped in gauze. Fasten stout, non-absorbent paper or tinfoil over the top of the pledget and the lip of the flask and sterilize in an autoclave, under steam pressure giving a temperature of 115° C. for thirty minutes.

If an autoclave is not available, close the mouth of the flask containing the water with a pledget of purified cotton wrapped in gauze, boil the contents actively for one hour and allow the water to cool without removing the cotton plug. Protect the mouth of the flask and the cotton pledget from infection through dust by wrapping the top of the flask tightly with paper.

Sterilized distilled water should be used within twenty-four hours after its distillation if it is to be employed for intravenous injection.

For other uses, it is preferable that the Water be resterilized after each opening and that it be used within a month after its preparation.

Liquor Sodii Chloridi Physiologicus.—*General directions changed*—Dissolve the sodium chloride in sufficient freshly distilled water, neutral to litmus, to measure 1000 cc. and filter, returning the filtrate until free from foreign particles. Then transfer the solution to a container of non-soluble glass, having a capacity of not over 1000 cc. and stopper with a plug of absorbent cotton, wrapped in gauze. Fasten stout, non-absorbent paper or tinfoil over the top of the plug and the lip of the container and sterilize in an autoclave under steam pressure, giving a temperature of 115° C., for thirty minutes. This solution should be used within twenty-four hours if it is to be employed for intravenous injection. For other uses, it is preferable that the solution be resterilized after each opening, and that it be used within a month after its preparation.

Chapter on Sterilization.—The revised chapter is given below:

STERILIZATION.

The term "Sterilization" as employed in the practice of medicine and pharmacy means the destruction or removal of bacteria or their spores and other living organisms. This may be accomplished in various ways, depending upon the nature of the material to be sterilized.

A sterile condition can be maintained only so long as the substance or material is kept from contact with air or other media which may carry microörganisms.

The important subject of sterilization cannot be treated exhaustively, nor can the details of scientific technique be fully described in this chapter.

Two of the chief reasons for failure in attempted sterilization are (*a*) lack of penetration of the maximum degree of heat to all parts of the substances to be sterilized, due to insufficient

time, too close packing, or a source of heat not sufficiently powerful to secure and maintain the desired temperature throughout the entire contents of the sterilizer, and (*b*) in the case of moist sterilization, incomplete saturation of the materials and surfaces to be sterilized—temperatures necessary for dry sterilization are much higher than those needed for moist sterilization, so that if the steam is superheated or mixed with dry air, the sterilization may be insufficient.

Suggested methods for the sterilization of different classes of material are as follows:

Glass and Metal Utensils.—These may be sterilized by heating them at a temperature of 170° C. maintained for two hours in a hot-air sterilizing oven, or in a closed vessel (autoclave) under steam pressure at a temperature of 115° C. maintained for thirty minutes. In steam sterilization, thorough saturation may be provided by arranging the utensils in the sterilizer with unstoppered openings down, so that there will be no dead horizontal air spaces, or by the use of a preliminary vacuum to allow the steam to displace the air in all parts, or by insuring that all utensils contain at least one-eighth of one per cent. of their volume of water when placed in the autoclave. As the presence of even a minute quantity of alkali is objectionable in glass containers in certain cases, the process of sterilization should in such instances be preceded by a thorough cleansing of the bottle, ampule, or other receptacle with dilute hydrochloric acid, 1 per cent., followed by a thorough rinsing with distilled water; relatively insoluble glass should be used and sterilization should be by dry heat rather than by steam.

Cork stoppers should not be used for containers to be sterilized. Cotton stoppers may be employed, and when used may be wrapped in a layer of gauze and covered with stout paper or tinfoil as described under *Aqua Destillata Sterilisata*. Rubber stoppers should be wrapped and should be sterilized separately or attached to the outside of the necks of the containers. These stoppers should be long enough so that they may be inserted and removed without touching the lip of the container with the fingers. The sterilized wrapper of the stopper may be used as a cap. Glass-stoppered containers are sterilized preferably by dry heat, capped and with the stopper separated from tight contact with the neck of the container by a strip of paper.

The flame from a Bunsen burner applied directly to the surface for two seconds may be used for sterilizing surfaces which are not adversely affected by such application.

Heating in a current of steam for thirty minutes, or boiling for five minutes in water, or in an aqueous 0.1 per cent. solution of sodium bicarbonate (to prevent rusting), will kill all non-spore-bearing organisms and some spore-bearing organisms.

Articles Made from Rubber.—Rubber tubing and rubber stoppers should not be sterilized by hot air, but by steam under pressure, with the precautions indicated above, or by boiling for thirty minutes in a 2 per cent. aqueous solution of cresol or phenol.

Medicinal Substances—Not Easily Decomposed by Heat.—If watery, or in aqueous solution, these substances should be sterilized by steam under pressure, as described under "Glass and Metal Utensils." In order that the exposure to heat may be the shortest which will effect thorough sterilization, the container should not be of thick glass and should be of as small a capacity as can conveniently be used. The preliminary heating before the temperature of 115° C. is reached may be shortened by admitting the steam to the autoclave under pressure from a separate generating plant delivering a pressure constantly above eighteen pounds. The stoppers should be of purified cotton, as above described, and a wrapped rubber stopper should be attached to each container unless the contents are for immediate use.

If dry or oily, these substances should be sterilized by dry heat, preferably in glass-stoppered containers, as described under "Glass and Metal Utensils." Cap the utensil or container with parchment paper before sterilization for protection against contamination and do not remove the paper until the substance is to be used.

Medicinal Substances Readily Decomposed or Damaged by Heat.—Substances or solutions which are decomposed when subjected to heat as directed in the preceding section (this includes solutions of many alkaloids) may be prepared in an approximately sterile condition as directed below:

Method 1.—Filter the liquid through a sterilized stone or porcelain filter (which has previously been tested to prove its efficiency in removing bacteria) into a sterile container protected by a sterile cover. Sterile rubber or glass tubing may be used to connect the filter with the container.

Method 2.—Sterilize all utensils which will come in contact with the substance, such as

scales, pans or paper, spatulas, funnels, etc., either by steam followed by drying, or by hot air, or by the Bunsen flame. After weighing out the required amount of substance, dissolve it in the required amount of sterile distilled water in a sterile, glass-stoppered container. Should the solution require filtration, use a sterilized funnel and filter paper and collect the filtrate in a sterilized container, closing it with a sterilized rubber stopper. The filtration must be conducted in such a manner that no contamination will result.

Emulsions in Glycerin or Oil.—Approximately sterile solutions or emulsions in glycerin or oil may be prepared in the following manner: Heat glycerin or oil in flasks of thin glass containing not over 50 cc. each, for two hours at 120 to 130° C. in a dry-air sterilizer, then introduce the sterile or approximately sterile medicinal substances after the liquid has cooled. The desired medicament may be incorporated by triturating it with a sterilized pestle and mortar containing the previously sterilized medium (glycerin or oil) and the solution or emulsion should then be quickly transferred to a sterilized glass container.

Surgical Dressings.—Cotton, gauze and ligatures (except catgut and other absorbable material) may be rendered sterile by steam under pressure or by hot air under the conditions and precautions previously indicated. It should be remembered that all surgical materials are not amenable to such thorough treatment without more or less deterioration taking place. Surgical dressings must be wrapped and packed in such a manner as to permit the penetration of steam or dry heat and at the same time so as to prevent all subsequent contamination with bacteria when removed from the sterilizer. The wrappers should be so folded that the packages may be unwrapped at time of use without touching the contents.

REPORT OF DELEGATES TO THE NATIONAL ANTI-NARCOTIC CONFERENCE HELD IN WASHINGTON, D. C., MAY 2–4, 1923.*

MR. PRESIDENT AND MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

Your representatives at the Anti-Narcotic Conference held in Washington, D. C., May 2 to 4, 1923, beg to report as follows:

The Conference opened on May 2nd instead of the 3rd as announced in the invitations sent out. In spite of this, all sessions were fairly well attended. There were present delegates from all sections of the country. There was one from Seattle, one from Oregon, one from Texas, one from Oklahoma, one from Nebraska, one from Minnesota, one from Illinois, several from Michigan and quite a number from the States in the East and South. Quite a number of these delegates were appointed by the Governors of the States or by the heads of educational or social welfare organizations. Representatives from the national and local organizations already at work in this field and from the medical societies were not so numerous. The American Medical Association, for instance, was not officially represented, there being present only an observer. Officers from the various departments of the Federal Government interested in the subject were likewise present only as observers.

A peculiar thing about this affair, which immediately struck your representatives, was that no one was able to give any information as to who was responsible for sending out the call for the conference or who had originated the movement. The invitations sent out were so worded that many were led to believe that the Federal Government was the instigator, but this was found not to be the case. In fact none of the Federal officials mentioned in the invitations sent out made addresses or were even present. The matter was never brought up in any of the sessions and was therefore not settled to the satisfaction of your representatives. As far as we were able to determine, the movement was instigated and managed by a self-appointed secretary, who had in no way been identified with anti-narcotic work in the past, who apparently knew but little about actual conditions in this field of endeavor, and who was, therefore, hardly the proper person to assume the responsibility of a call of this nature.

Because of the uncertainty as to who was actually backing this move, its ultimate aims and purposes, and because our esteemed sister association, the American Medical Association,

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* Report received at Asheville meeting, A. Ph. A., 1923. See address of President Julius A. Koch.

was not officially represented, your representatives decided not to register as delegates or to pay the fee, but merely to act as observers. Subsequent developments appear to indicate that this was the best course to pursue and it is hoped that it meets with your approval.

The activities of the Conference may be briefly stated as follows: About six sessions were held—morning, afternoon and evening meetings being held. The greater portion of the time of all but two sessions was devoted to speech-making. Most of the delegates present appeared to desire to make a speech and they were given the opportunity to do so. A number of the speakers were fairly conversant with the narcotic situation and their talks were interesting and instructive. Many, however, if not most of them, had no intimate knowledge of the narcotic problem and merely gave voice to a desire to fight the evil. On the second day, a Committee on resolutions consisting of some twenty odd delegates was appointed. The resolutions presented, however, were formulated by only five or six of the members, no efforts apparently having been made to secure a full attendance of the Committee. In fact, our representative on the Committee was not even notified of the time or place of the meeting. These resolutions when presented were discussed at considerable length, but there was little prospect for any delegate opposed to them to successfully present his case, since the meetings were conducted without much regard to parliamentary procedure. The fact that no roll-call of official delegates was taken, but that all present were permitted to vote, is ample evidence of this. The resolutions finally adopted follow:

"WHEREAS, from the papers and discussions of the National Anti-Narcotic Conference it has been demonstrated that drug addiction is a distinct menace, and that it is increasing in extent, and

WHEREAS, all efforts made by municipal, state and federal authorities to cope with this evil have not been entirely successful, and

WHEREAS, there has been a tremendous increase in the manufacture throughout the world, of morphine, cocaine and their derivatives, far beyond the needs of medicine and science, and

WHEREAS, our experience shows that the young men and the young women are those most susceptible to this insidious addiction; therefore be it

Resolved, That this conference calls upon the pulpit, the press, and all educational and welfare organizations to realize the impending danger to the youth of the world; that all such forces join hands in suppressing this evil addiction and the fiendish traffic in soul-destroying narcotics; and that the evil effects of narcotics be taught in our schools; and

Resolved, That it is the sense of this conference that municipal ordinances, state and federal statutes, be enacted and strengthened; and with a greatly increased field force effectively administered; and

Resolved, That the President of the United States be commended for sending abroad a commission pursuant to the Porter Resolution, for the purpose of securing unified, world-wide action in ascertaining the world requirements of narcotics for medicine and science, and the specific agreement of all the nations be secured to limit the growth of the poppy and coca plants, and the manufacture of morphine, cocaine and their derivatives to the medical and scientific needs, and that all chemical laboratories in the world engaged or which may engage in the synthetic manufacture of heroin and cocaine be under individual government control, and that such product be labeled synthetic, the amount to be limited to the needs to be determined by such international agreement: and

Resolved, That this conference indorses the conclusion that medical and scientific use should be the only legitimate use of opium, and that all non-medical use should be regarded as an abuse, and that the use of opium as a stimulant cannot be considered legitimate even in tropical countries; and

Resolved, That in the opinion of this conference, if the Opium Advisory Committee sitting in Geneva reaches the conclusion that the Opium Convention of 1912 is not sufficiently adapted to meeting effectively the problem of restricting cultivation at its source, that convention should forthwith be amended; and

Resolved, That a copy of these resolutions be personally presented by Chairman Kober to Honorable Warren G. Harding, President of the United States; and

Resolved, That this conference be continued as a delegate organization after the close of its present sessions; and that Dr. George M. Kober be made the chairman, and that

Rexford L. Holmes be made secretary of the conference, and that Chairman Kober be empowered to appoint one person from each state represented at the conference, and five at large who, together with the chairman and secretary, shall be an executive committee to manage the necessary affairs of the organization until the next delegate meeting, said meeting to be subject to the call of the chair, which shall appoint the chairman and vice-chairman of the executive committee, no indebtedness to be incurred except with the consent of the committee. The executive committee shall have authority to add members for states hereafter desiring representation: and

Resolved, That it is the sense of the National Anti-Narcotic Conference assembled in Washington, that the seriousness of the narcotic menace justifies and emphatically requires the immediate, material increase of the appropriations available for the enforcement of the various narcotic laws by the federal anti-narcotics division of the United States government, and that copies of these resolutions be sent to members of the appropriate committees of both houses of Congress; and

Resolved, That the federal authorities should be requested to use all the agencies of the government appropriate for the purpose, to suppress the smuggling of habit-forming narcotics into this country, since these constitute most of the drug peddlers' supply; and

Resolved, That the permanent presiding officer of the conference appoint a committee of five to examine the laws and legislative enactments of the various states relating to the suppression and regulation of the narcotic drug evil in all of its phases, and cure of the addicts thereto and to develop and draft from said examination and investigation, proposed legislation which, after approval by the executive committee, shall be offered as uniform legislation thereon to all legislative bodies, the passage of which is to be urgently supported by the National Anti-Narcotic Conference and its state sister bodies; and

Resolved, That inasmuch as many regulations relating to narcotics are unavoidably a burden to legitimate practitioners and dealers, we respectfully urge that only such regulations be maintained as are absolutely necessary to prevent the evil aimed at; and

Resolved, That the federal enforcement of the narcotics laws and regulations be completely separated from the federal enforcement of prohibition laws and regulations."

Aside from the adoption of the foregoing resolutions, the only other accomplishment worthy of note was the formation of a permanent organization by making the Conference a delegate body and electing a chairman and an executive secretary. An executive committee was in turn appointed by the chairman and likewise a committee on principles and policies. The medical and pharmaceutical professions were given representation on both of these committees. It is understood that one of the first duties of the executive committee would be to formulate and put into operation plans for building up the Conference and financing its activities. Nothing has been learned with respect to what this committee has done, but there is no doubt in the minds of your representatives but that membership in the Conference can be obtained by the Association if it so desires. All that is necessary is to make application and pay the fee of $15. In this connection, however, your representatives would advise the exercise of caution. Only recently propaganda has been started for the formation of a world league for the control of the production of narcotic drugs and there are those active in this movement who would even go so far as to suppress the use of these drugs in the practice of medicine. There were some present at the Conference who indicated by their utterances that they would support measures of the most extreme type. We should, therefore, be sure of the intents and purposes of any organization before becoming affiliated with it.

(Signed) A. G. DuMez,
E. G. Eberle,
E. F. Kelly.

VIRGINIA BOARD OF PHARMACY.

Secretary A. L. I. Winne announces that the offices of the Virginia Board of Pharmacy are now located on the seventh floor of the New State Office Building, a handsome two million dollar structure located on the Capitol grounds. Most of the state offices are now housed in the new building. The address of the Board is Room 712.

ASSOCIATION BUSINESS

AD INTERIM BUSINESS OF THE BOARD OF DIRECTORS.

Office of the Secretary, 192 Roseville Ave., Newark, N. J.

LETTER NO. 13.

March 4, 1924.

To the Members of the Board of Directors:

69. Approval of Tax Reduction in Principle: Motion No. 17 (see item 65, page 260, letter No. 12) has been carried.

70. Digest of Comments on U. S. P. and N. F.: The Secretary has received the following communication from the Treasury Department in answer to a communication sent to Secretary Mellon in January, setting forth the attitude of the Board of Directors with regard to the possibility of suspending publication of the "Digest of Comments on U. S. P. and N. F." (see page 80, Letter No. 9).

"February 7, 1924.

"Sir:

By direction of the Secretary, I beg to acknowledge the receipt of your letter of January 24 in which you urge the bringing up to date of the Digest of Comments on the U. S. Pharmacopœia by the Public Health Service.

"The result of my inquiries indicates that this work is now being carried on with the intent to complete the comments for the year 1922 within the next few months. The number of employees detailed to the task has naturally been decreased as the literature for past years has been caught up with.

"The attitude of the Department with respect to the value of this work may be expressed as follows:

"While it is recognized that the Digest of Comments is of value to the professional groups referred to in your letter, it is not felt that is has a sufficiently broad public health bearing to warrant carrying it on at the expense of fundamental research projects, the results of which would be of value to a much larger number of people.

"The funds at the disposal of the Department for public health research are so limited that great care must be exercised that they are expended in such a manner as will return the largest results for the country as a whole. It would seem that some organization, such for example as the one which you represent, or the Pharmacopœial Revision Committee, might take up the work of compiling the Digest of Comments, the value of which to such agencies is so great.

Respectfully,

ELIOT WADSWORTH,

Assistant Secretary."

71. Full Time Secretary: At the request of Chairman Beal, the following correspondence is placed before the Board of Directors:

"Richmond, Va., Feb. 8, 1924.

"Dear Dr. Beal:

"The minutes of the Board of Directors of the A. Ph. A. as printed in the January Journals do not show that any action was taken toward fulfilling one of the important conditions provided for in the new plan of organization, *viz.*, the employment of a full time secretary. I have no doubt the State associations will begin to question the good faith of the new arrangement, unless this is taken care of before they meet.

"May I ask if the Board contemplates any action on this in the near future.

Very truly,

WORTLEY F. RUDD."

"Camp Walton, Florida. Feb. 20, 1924.

"Dear Professor Rudd:

"Your esteemed favor of February 8th addressed to Urbana, Ill., has been forwarded here where I am spending the winter.

"The employment of a full time Secretary was the subject of much discussion at the Washington meeting of the Board of Directors, but no definite action was taken. The principal difficulty seemed to be to find a man capable of filling the position and willing to accept it. If we could have had the benefit of your wise counsel, it is possible that we might have been able to reach a definite decision.

"I do not know that the members of the Board have any specific action in contemplation at present, but I am sure they will appreciate your assistance in solving the problem before them.

"I shall be pleased to place before the Board any communication you may desire to make.

With best wishes,

Very truly yours,

J. H. BEAL."

72. Assignment of Committees not otherwise provided for: The question has arisen as to who shall appoint the Committee on Standards for Unofficial Drugs and Chemical Products, the Committee on Transportation and the Commission on Proprietary Medicines which are not provided for in the revised constitution and by-laws. Chairman Beal has ruled that the Committee on Standards for Unofficial Drugs and Chemical Products, and the Commission on Proprietary Medicines, having been created by Council action, are now under the supervision of the Board of Directors. As they were not named in the old by-laws, their existence is not terminated by the failure to mention them in the new by-laws. The Committee on Transportation, however, is on a different footing. This committee existed by virtue of its being named among the committees specified in the old by-laws. Therefore, if it is not named in the new by-laws, and apparently it is not, it ceases to exist until reëstablished.

If there is no disagreement on this ruling within ten days, the matter will be disposed of as provided for by this ruling.

73. Applicants for Membership: No. 332, Lee Clyde Gammill, 2809 West 14th St., Little Rock, Ark.; No. 333, Harold Jay Shames, 3847 Giles Ave., Chicago, Illinois; No. 334, Edgar Marion Ohnstein, 2547 So. Kedzie Ave., Chicago, Illinois; No. 335, Dai Chuck Chang, 316 N. King St., Honolulu, Hawaii; No. 336, Eugene Henry Silverstone, 1137 32nd Ave., Seattle, Wash.; No. 337, Victor Johnson, 5007 Brooklyn Ave., Seattle, Washington; No. 338, Ladislaus Aloysius Bilski, 5040 W. 31st St., Cicero, Ill.; No. 339, Jacob C. Dykema, 110 Fulton St., E. Grand Rapids, Michigan; No. 340, Floyd St. John, Stephensville, Montana; No. 341, Harry Riback, 1551 S. Hamlin Ave., Chicago, Ill.; No. 342, Dr. Robert Eder, Institute of Pharmacy, Swiss Federal Polytechnicum, Sonneggstrasse 5, Zurich, Switzerland; No. 343, Jerry Albert Pierce, 23 Vine Street, Brooklyn, N. Y.; No. 344, Edna Allen, Selah, Washington; No. 345, Leon Wright Richards, 202 West 48th St., Seattle, Washington; No. 346, Edward H. Zeiler, 2611 East 74 St., Chicago, Illinois; No. 347, Harold E. Becker, 23 Vine Street, Brooklyn, N. Y.; No. 348, Herbert Frederick Schwartz, 150 Bausman St., Pittsburgh, Pa.; No. 349, Stacy Buckner Hall, P. O. Box 862, Chapel Hill, N. C.; No. 350, Earl Jewell Lavery, 4550 6th St., N. E., Seattle, Washington; No. 351, Oscar Carl Carlson, Wilkson, Washington; No. 352, Miss Kiyo Ariizumi, 913 Yesler Way, Seattle, Washington.

(*Motion No. 19.*) *Vote on applications for active membership in the American Pharmaceutical Association.*

ROBERT P. FISCHELIS, *Secretary,*
Board of Directors, A. Ph. A.

LETTER NO. 14.

March 14, 1924.

74. Location of Headquarters Building: Chairman J. H. Beal has submitted the following communication:

To the Members of the Board of Directors:

I have just received from Dr. Dunning the following telegram:

"Baltimore, Md., 3–10, '24.

"J. H. Beal,
Camp Walton, Fla.

"From extensive correspondence, indicates that it is being generally accepted that the Headquarters Building will be in Washington.

"Within the last few days a number of prospective subscribers have insisted upon this location. Some of my Committee-men and State Chairmen have advised me that they will withdraw their coöperation unless something is decided upon. The communications which I have in hand make it evident that Washington is the proper location. I am greatly handicapped in the campaign work. If it is not possible to decide immediately, and announce Washington as location, telegraph reply.

(Signed) H. A. B. DUNNING."

It is for the Board of Directors to decide whether it has the authority to make any change in the plan already agreed upon.

By action of the old Council, it was decided that the question of location would not be taken up until after sufficient funds had been pledged for the erection and maintenance of the building. This action was reported at two annual meetings of the Association and the report approved without objection. The same action was taken by the Board of Directors at its late meeting in Washington.

All subscriptions hitherto taken have been with the understanding that the question of location would be decided by the membership of the Association at large, and this has been generally and widely announced through the

pharmaceutical press and in the Association JOURNAL.

The Chairman does not wish to accept the responsibility of deciding whether the Board of Directors can, without further instructions from the Association, change the program previously agreed upon.

The members are requested to send to the Secretary of the Board any comments or motions they may have to offer at the earliest possible date.

Respectfully submitted,
J. H. BEAL, *Chairman.*

75. Committee on Transportation: Secretary W. B. Day submits the following communication:

"I received this morning Letter No. 13 of the Board of Directors. I should like to comment on the status of the Committee on Transportation. When this Committee was created it no doubt served a very useful purpose, the idea being to have a member of this Committee in each of the larger cities to arrange for transportation of the members from these points to the convention city. It seems to me that the need for a committee of this kind has passed. The officers of the Branches are now in the best position to make local arrangements for transportation and the Secretary of the Association should be able to make whatever general arrangements that are necessary; for example, Secretary Schaefer of the New York Branch, has usually made arrangements for transportation of the members from New York and vicinity, as witness the trip that the eastern members made to Asheville *via* Charleston, South Carolina, last year. The Secretary is in the best position to place before the Board of Directors for ratification whatever arrangements may be made with the railroads to secure reduced fares.

"I have already taken this up with some of the railroads and expect to be able to present the matter to the Board of Directors for action at an early date. Therefore, in my opinion, it is not necessary to revive the old Transportation Committee."

Yours very truly,
WM. B. DAY, *Secretary.*

76. Resolutions on the Death of Dr. Hancock: The committee appointed by Chairman Beal to draw up suitable resolutions expressing the sentiment of the American Pharmaceutical Association on the passing of Dr. Hancock submits the following:

RESOLUTIONS ON THE DEATH OF DR. JOHN F. HANCOCK.

In the death of Dr. John F. Hancock of Baltimore, Maryland, American Pharmacy has lost a picturesque and commanding figure. A pharmacist of the old school, embodying the highest and noblest traditions of the principles and the practice of the profession, he exemplified everything that is commendable or good in pharmacy.

A student and admirer of William Procter, Jr., "The Father of American Pharmacy," Dr. Hancock carried down into the present generation the ideals and traditions of that period when the American Pharmaceutical Association had its beginning and codes of professional and business practice were first formulated and adopted.

The American Pharmaceutical Association can ill afford to lose one of its most illustrious members, but the loss is tempered by the knowledge that in all the years of his membership Dr. Hancock reflected naught but credit upon his chosen profession, and that if his example could but be multiplied a thousandfold it would place pharmacy in a position where it would compel the respect which has so often been denied it.

The Board of Directors of the American Pharmaceutical Association desires to express its keen appreciation of the loss that has been suffered by the Association in the death of Dr. Hancock and to extend to the bereaved family the sympathy of the organization which he honored by his long affiliation with it.

Respectfully submitted by the Committee:

CHARLES H. LAWALL, *Chairman,*
E. F. KELLY,
ROBERT P. FISCHELIS.

(*Motion No. 20.*) It is moved by Fischelis that the foregoing resolutions be adopted and that copies be sent to the family of Dr. Hancock and to the pharmaceutical press.

77. Appropriation for Headquarters Campaign: (Motion No. 21.) It is moved by LaWall that an appropriation not to exceed $5000 be made for the Headquarters Building Fund Campaign and that this amount be added to the 1924 expense budget.

78. Election of new members: Motion No. 18 (see item 68, page 261, Letter No. 12) and Motion No. 19 (see item 73, Letter No. 13) have been carried.

ROBERT P. FISCHELIS, *Secretary,*
Board of Directors, A. Ph. A.

LETTER NO. 15.

March 22, 1924.

79. Location of Headquarters Building: Mr. Hilton writes as follows:

"Washington, D. C., March 15, 1924.

"No one is in such a good position as Dr. Dunning to advise on the location of the Headquarters Building, I feel that his suggestion should have full support, I therefore move that the matter be laid before the Directors for a vote and that the Headquarters building be located in Washington.

S. L. HILTON."

(*Motion No. 22.*) It is moved by Hilton that the headquarters building be located in Washington. Comments are in order.

Prof. Scoville writes as follows:

"Detroit, March 18, 1924.

"Regarding the situation which the A. Ph. A. is now in, relative to the collection of funds for the Headquarters Building, I desire to make the following motion:*

"I have long felt that the prospects for a successful campaign would be much strengthened if we had a more definite project to campaign for. If now there can be set a definite time at which the location of the building, an estimate of cost, and an estimate of endowment (and I believe that these two should be considered in their definite relationships to each other) will be considered—and probably settled, then the present plans can be carried on with the proviso that when necessary, subscriptions may be received subject to withdrawal if such plans are disapproved by the subscribers within four months of their publication.

"I believe that it is the privilege—nay, even the duty—of a subscriber to judge not only the worthiness of a cause but also the reasonableness and thrift with which it is to be executed. Hence I think that the demand to know more definitely what our plans are is reasonable and I hope that the above motion will put our campaign on such a basis.

Yours very truly,

WILBUR L. SCOVILLE."

* (*Motion No. 23.*) That the combined committees on the Headquarters Fund (Drs. Beal and Dunning, chairman) be requested to present at the Buffalo meeting of the American Pharmaceutical Association, definite recommendations for the (city) location of the proposed Headquarters Building, together with an estimate of the (minimum) cost of such building, suitable to the needs of the association, and of the endowment necessary for its maintenance.

(Comments are invited.)

Mr. Beringer writes as follows:

"Camden, N. J. March 19, 1924.

"In consideration of the subject presented in letter No. 14, the decision by the Board of Directors as to the location of the proposed 'Headquarters Building,' I am constrained to present my view on this subject. I believe that it would be ill advised for the Board of Directors to assume the authority to decide the question, which it was distinctly understood, was to be reserved for decision by the entire membership of the Association. The more thought I give to this subject, the more am I lead to the conclusion that we should not speak of the proposed building as 'Headquarters Building.' The ideas and discussions on the subject are now taking a more definite shape and sentiment is now so crystallizing that I believe that we should adopt a different title. The original proposition spoke of this as the 'Home of the American Pharmaceutical Association;' later we have spoken of the title as that of 'Headquarters Building.' The purpose now would indicate that it is to be a building dedicated to all Pharmaceutical interests, and as this purpose has been agreed upon, I would suggest as a more appropriate title, 'American Pharmacy Building.' The ownership, control and management of the property should, of course, continue with the American Pharmaceutical Association.

"As to the location, I have in mind the sentiment of the Country is crystallizing in favor of Washington as the proper place for all such national buildings.

"It possibly would not be out of order for the members of the Board of Directors to express their individual preference or opinion in this matter without assuming to officially decide the question that has been reserved by the prior action of the organization. Such a public expression from the Directors would amount to a straw vote, but would not be obligatory or binding on the members.

Yours very truly,

GEORGE M. BERINGER."

ROBERT P. FISCHELIS, *Secretary*,
Board of Directors, A. Ph. A.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Board of Directors."—Part of Chapter VI, Article VI of the By-Laws.

Article IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CHICAGO.

The 141st meeting of the Chicago Branch of the American Pharmaceutical Association was held at the University of Illinois School of Pharmacy Building, Friday evening, March 14, 1924, with President Warren in the Chair. The meeting was well attended by about 125 members and friends who very warmly greeted the speaker of the evening—Dr. Wm. D. Harkins, the noted physical chemist of the University of Chicago.

Dr. Harkins presented, in rather a popular manner, his splendid illustrated lecture on "The Structure of the Atom." An extended discussion followed the lecture.

As the substance of the lecture has already appeared in print, no motion was made to present it for publication to the Journal of the Association, but the high appreciation with which the lecture was received was expressed to the noted speaker.

E. N. GATHERCOAL, *Secretary.*

CINCINNATI.

At the March meeting of the Cincinnati Branch of the American Pharmaceutical Association, L. H. Buisch of the National Cash Register Company, Dayton, discussed methods of increasing the average sales, showing the important bearing this had on the matter of profit. The paper was discussed by Harry G. Schmuelling, Frank Freericks, Fred Kistner and Caswell A. Mayo who presided. A nominating committee was appointed to present nominations for officers for the ensuing year to be voted on at the April meeting.

Reported by CASWELL A. MAYO.

DETROIT.

The sixth regular meeting of the Detroit Branch of the American Pharmaceutical Association was held March 14th, 1924 at the Wayne County Medical Society.

The attendance eclipsed by far any of the previous sessions, about one hundred being present. The dinner which preceded also was attended by an overflow gathering, which did just honor to Dr. Novy who was present. President Crandall called the meeting to order. The minutes were read by the Secretary and approved.

Mr. Hall reported progress for the membership committee. Mr. Jones, chairman of the program committee, announced that the April meeting would be held in Ann Arbor April 11th, with dinner at the Michigan Union. The speaker, as previously announced, will be Dean Edward H. Kraus, of the Pharmacy Department of the University of Michigan; his topic will be "Some Properties of Crystals." Mr. Grommet suggested that a car be chartered to take the members to Ann Arbor; a motion carried, giving power to a transportation committee appointed by the President to make necessary arrangements. President Crandall appointed Messrs. Grommet, Zindler and Seltzer to act in this capacity.

J. H. Webster read, in part, an appeal from the German Pharmaceutical Association for aid for the suffering widows and children of German pharmacists, who are in dire need of food and clothing. He suggested that contributions be made to the Branch Secretary, who will forward them to the relief committee.

President Crandall announced his appointment as State representative of the Pharmaceutical Building Headquarters Fund; he asked for liberal donations.

President Crandall introduced the speaker of the evening Dr. F. G. Novy, Professor of Bacteriology and Director of the Hygienic Laboratory of the University of Michigan.

Dr. Novy gave a most interesting address on "Pasteur's Work." He told of many incidents connected with the life of the great French scientist and also of the celebration in his honor which the speaker attended recently in France. Discovery of the method of pasteurizing milk and thus killing bacteria, was the result of experiments made by the Scientist while seeking to kill growths in wine and beer. Fermentation, he proved, was caused by the presence of bacteria; he spoke of his studies relating to putrefaction. He proved the theory of spontaneous generation false.

Dr. Novy told of Pasteur's success in isolating the Anthrax bacillus which threatened to wipe out the sheep of France, and of his discovery of a method to combat hydrophobia. He said the foundation of the science of bacteriology and the cause of diseases and their prevention was laid by Pasteur. The speaker was given a hearty vote of thanks.

BERNARD A. BIALK, *Secretary.*

UNIVERSITY OF NORTH CAROLINA.

The fifth monthly meeting of the University of North Carolina Branch of the American Pharmaceutical Association for the year 1923–24 was held on Monday evening, February 11, 1924, at the Pharmacy Building.

After the regular business session, Mr. Frederick O. Bowman, General Attorney for the North Carolina Pharmaceutical Association, addressed the Branch, taking for his subject "The Pharmacist and the Law." The speaker first traced briefly from a historical standpoint the development of Pharmacy as a profession, at the same time referring to some of the early statutes governing the sale of poisonous drugs, which formed the basis of our present system of Pharmacal Jurisprudence. He then discussed somewhat at length the legal limits of pharmacy, citing numerous cases decided by Courts of last resort, to support his contentions as to what the pharmacist may legally do, and to drive home the prohibitory features of the law, as it applied to the pharmacist. In conclusion, he spoke of the rights, duties and liabilities of the pharmacist with respect to prescriptions.

The members of the Branch extended a rising vote of appreciation to Mr. Bowman for his most timely, interesting and instructive lecture.

MARCH MEETING.

The sixth meeting of the University of North Carolina Branch of the A. Ph. A. for the year 1923–24 was held at Phillips Hall, Monday evening, March 24.

The meeting was largely attended by the members of the faculty, students of the school of pharmacy and medicine, the department of chemistry, and many pharmacists and physicians from various sections of the State.

Dr. A. L. Walters, head of the Department of Pharmacology and Experimental Medicine, Eli Lilly and Co., Indianapolis, Ind., delivered an address on "Insulin, Its Properties and Clinical Use." Dr. Walters divided his lecture into three parts. In the first part he gave a chronological account of the work which had been done previous to the discovery of Insulin in an endeavor to find some cure for diabetes. He then spoke of the successful work of Dr. Banting and his associates in the discovery of Insulin and gave a detailed account of the method of preparation, purification and standardization of the product.

Dr. Walters next discussed the symptoms, diagnosis, and causes of diabetes and finally gave in a most interesting manner the therapeutic action and method of administering Insulin as well as the proper diet in the treatment of diabetes. He stated that Insulin was not a cure for diabetes but that it was successful inasmuch as it did aid the body in the proper assimilation of carbohydrates and prolonged the lives of diabetics who had heretofore died of starvation. Dr. Walters said that the most hopeful use of Insulin was in the treatment of diabetic children and that it held out the hope that children suffering with this disease may by the use of Insulin be finally restored.

The audience was greatly interested in Dr. Walters' lecture and the local branch of the A. Ph. A. is deeply indebted both to the lecturer and the Eli Lilly and Co. for the enjoyable and instructive presentation of the subject.

C. R. WHITEHEAD, *Secretary.*

Prof. E. V. Kyser reports the whole-hearted support of the University Branch for the Headquarters Building and coöperation is pledged for securing funds.

NORTHERN OHIO.

The regular meeting of the Northern Ohio Branch of the American Pharmaceutical Association was held at the School of Pharmacy of Western Reserve University, Wednesday, March 18th, at 8 P.M. The election of officers, which had been postponed from the January

meeting, was held. The following officers were reëlected for 1924: Williard Fox, *President;* Harry Placak, *Vice President;* Edward D. Davy, *Secretary;* H. F. Guenther, *Treasurer.*

E. D. DAVY, *Secretary.*

PHILADELPHIA.

The monthly business meeting of the Philadelphia Branch was held Tuesday evening, February 12th, at the Philadelphia College of Pharmacy and Science. President White presided.

Secretary Harrisson presented a number of changes in the By-Laws which were received by the members and a Committee appointed to make a final draft and submit them at the next meeting. President White appointed the following committee: Joseph W. England, chairman; Jos. W. E. Harrisson and E. G. Eberle.

The Committee on Nominations was then appointed by the President and instructed to report at the March meeting: E. G. Eberle, chairman; Chas. H. LaWall and E. Fullerton Cook.

The scientific program of the evening was then entered into and President White introduced Chas. V. Sparhawk of Chas. V. Sparhawk Inc., who spoke on the "Manufacture of Volatile Oils." A large collection of lantern slides was shown illustrating the manufacture of various oils including, Wormseed, Wormwood, Sassafras, Birch, Wintergreen and Cedar Leaf. The various types of stills were pictured—from the rather crude affairs of the mountain districts to the most elaborate and efficient ones employed in the manufacture of Wormseed Oil. The greater number of these oils are distilled in the open and adjacent to where the oil-yielding plants grow.

Numerous views of the interior of the company's plant were also shown; these included those of various types of vacuum stills and the storage house where certain plants are stored previous to distillation.

The lecture was thoroughly appreciated by those present and Mr. Sparhawk was warmly congratulated on the very excellent slides which he had obtained.

JOS. W. E. HARRISSON, *Secretary.*

UNIVERSITY OF WASHINGTON.

The regular monthly meeting of the University of Washington Branch was held, January 29, 8 P.M., at Bagley Hall. Thirty-five members were present. Dean Johnson presented a report on the program for the A. Ph. A. meeting at Buffalo and gave a very interesting talk on the procedure of conducting the National meetings. It was noted that the Buffalo committee will entertain the ladies at cards. Oh Mah Jong!

After Dean Johnson's report President Shaw called upon Mr. T. W. Lough, former pharmacist and now X-ray specialist with the city hospital and health department, who presented a very interesting and able talk on hospital pharmacies and pharmacists. The general outline of his talk was as follows:

(*a*) Private Hospitals.
  (1) General
  (2) Special
(*b*) Institutional Hospitals.
  (1) General
  (2) Special
(*c*) Municipal Hospitals.
  (1) General
  (2) Charity
  (3) Contagious
(*d*) Federal Hospitals.
  (1) Tubercular
  (2) Veterans
(*e*) Pharmacists Duties.
  (1) Usual, dispensing, supplies, etc.
  (2) Unusual, instructor in training school, assistant to clinic, X-ray, etc.
  (3) Medicines and Prescriptions—ordinary and unusual.

Mr. Lough concluded his talk calling attention to the fact that "the idea of service must be one foremost with a pharmacist." That pharmacy should be looked upon as a possibility to be of benefit to mankind.

During the general discussion following the talk Mr. Lough called attention to a very extensive outline of a hospital staff as given in The Modern Hospital Year Book of 1919; whereas carpenters, butchers, oilers and bakers found place in the outline, the pharmacist was conspicuous by his absence. He suggested that the matter be taken into consideration, and upon the motion of Dean Johnson, the secretary was requested to refer the matter to General Secretary Day for such action as may seem necessary. Meeting adjourned at 10:30 P.M.

H. A. LANGENHAN, *Secretary.*

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Board of Directors, A. PH. A.: JAMES H. BEAL, *Chairman;* S. L. HILTON, *Vice-Chairman;* ROBERT P. FISCHELIS, *Secretary;* CHARLES H. LAWALL, HENRY M. WHELPLEY, JOHN G. GODDING, GEORGE M. BERINGER, CHARLES E. CASPARI, W. L. SCOVILLE. *Ex-Officio:* H. V. ARNY, President; WILLIAM B. DAY, Secretary; E. F. KELLY, Treasurer. Committee on Publications: R. P. Fischelis, *Chairman;* H. V. Arny; Geo. M. Beringer; E. F. Kelly; Wm. B. Day; A. G. DuMez, E. G. Eberle.

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WE ARE SHAPING OUR COURSE TOWARD ACCOMPLISHMENT.

BY GEORGE M. BERINGER.

It is now more than a decade since some of the leaders of pharmacy startled the members of the American Pharmaceutical Association with the proposition that the Association should have a permanent home, that this building should be located in one of the larger cities, that it should serve as the Association's headquarters in which its offices and editors could be housed, and from which its activities would be directed. At first, there was only a hazy atmosphere accompanying the discussion of this subject. There was no clear vision, no well defined plan, no chart of the course that must be followed to attain the object. The scope of the activities contemplated was not defined and the character of the building that would be required to serve the determined activities and uses was given scant consideration.

In the years that have since elapsed, the proposition has been a periodical topic for discussion at the meetings of the American Pharmaceutical Association and its branches and it likewise has occupied considerable space in the drug journals. These discussions have served largely as a means of educating the body pharmaceutic as to what the American Pharmaceutical Association has already accomplished under the most trying conditions and with insufficient equipment; what it aims to do for the advancement of pharmacy, and to crystallize the thoughts into a definite plan of action.

It is now well understood that the proposed American Pharmacy Building is to be a national building to serve not only the needs of the American Pharmaceutical Association but that this Association in a truly altruistic spirit proposes to offer its services and the use of portions of this building to the various drug and pharmaceutical organizations of the country for the purpose of holding meetings and carrying out coöperative work in behalf of the interests which these bodies represent. The building shall be owned, constructed, equipped, controlled and managed by the American Pharmaceutical Association, not only as a monument to pharmacy, but as a service in perpetuity thereto. That it is proposed to house therein the offices and editorial staff of the Association, also a national pharmaceutical museum and a thoroughly equipped laboratory for pharmaceutical research.

The events of last year have demonstrated that the time has now arrived when the thought and discussion devoted to this project must be followed by earnest concrete action. After careful deliberation, we have come to a proper decision, and the time has now arrived when we must look forward to the accomplishment of the project, to the fulfillment of the ambition, to a fruition of the effort, and from henceforth there must be action, and then more action, and finally more action until success is achieved and the project is accomplished.

We are shaping our course now toward a consummation, " 'tis a consummation devoutly to be wished."

PERSONAL AND NEWS ITEMS.

A. H. King, Manhattan, and **Roy P. Taylor,** Pittsburgh, have been appointed by Governor Davis, of Kansas, as members of the State

Board of Pharmacy to succeed **J. Floyd Tilford** and **D. F. Deem.**

J. K. Lilly addressed the Mortar and Pestle Society of the School of Pharmacy of the University of Florida on March 6th. The subject of his address was "A Visit to the Cinchona Plantations of Java." He traced the history of cinchona from the time of its discovery to the present and spoke of the development of modern cinchona plantations, the method of handling the bark and the manufacture of quinine.

Clyde L. Eddy, chairman of the German Pharmaceutical Relief Committee, reports that by the prompt response to the appeal, the recently organized relief committee was enabled to send food drafts on March the 14th to all of the thirty children whose names had been obtained from the German Pharmaceutical Association. Each child has received or presently will receive a package containing 49 pounds of flour, 25 pounds of rice, 10 pounds of sugar, 8 pounds of cooking fats, 3 pounds of cocoa and 24 one-pound tins of evaporated milk. The Committee is grateful for the prompt and generous response that was made in behalf of the German children; further contributions are asked for the continuance of this work of charity.

J. Leon Lascoff celebrated the 25th anniversary of his business activities, March 11. During this period 530,204 original prescriptions have been filled in this store. His son is now associated with him.

Hugo Kantrowitz, Editor of the *Apotheker Zeitung,* has recently celebrated the 45th anniversary of his connection with the publication named. Prior to that time, the dean of pharmaceutical editors was employed by a Philadelphia newspaper and this publication expressed its congratulations.

Otto J. S. Boberg, veteran druggist of Eau Claire, Wisconsin, attended the recent meeting of the Iowa State Pharmaceutical Association as a representative of the Wisconsin Association. He was favorably impressed with the Drug Show, which attracted many visitors.

Dr. Edward Plaut, president of Lehn and Fink, Inc. has presented the Harriman Research Laboratory with the sum of $3000, for 1924, to be known as the Plaut Research Fund for Studies in Internal Medicine. This fund is to aid in the investigation of the effects of certain therapeutic agents especially the endocrine glands. Dr. K. G. Falk has been placed in charge of this work.

Caswell A. Mayo, former president of the American Pharmaceutical Association, was the guest of the Chemists' Club of Cincinnati at one of their recent monthly dinners at the University of Cincinnati. The subject of his address was "Where Drugs Come from." He also addressed the Paleolinguists' Society of the University of Cincinnati on "Medicine and Pharmacy in Ancient Egypt."

J. L. Hopkins & Co., drug millers, have moved their office from 100 William St., New York City, to more commodious quarters, 135 William St.

Colonel Frank L. McCartney, for a number of years with the Monsanto Chemical Works, St. Louis, is now manager of the Chicago office of the Norwich Pharmacal Company.

Clarence O. Bigelow of New York City has erected a tablet in his pharmacy commemorating the 85th anniversary of the founding of the business by Dr. Galen Hunter. The tablet records the changes of the firm, as follows: 1863–1880 under the proprietorship of George L. Hooper; from 1880–1922 as the pharmacy of Clarence O. Bigelow. In 1922 the business was incorporated and this tablet also marks the third successive passing of ownership from employer to employees. Among the present staff of thirty-five tried assistants, G. H. McCausland, F. S. Morse, F. A. Schraedley and A. F. Weisboord have served in this pharmacy for upwards of a quarter of a century.

Harry F. Sinclair, whose name has been conspicuous on front page news items during the past few months, was at one time a druggist of Independence, Kansas.

Julius A. Koch spoke before the Congress of Women's Clubs of Western Pennsylvania, March 12, on "The Chemistry of Cosmetics."

Herbert S. Speckart has been elected president of the St. Louis Retail Druggists' Association. Mr. Speckart served in the U. S. Navy during the War.

Dean Frederick J. Wulling was presented with a gavel, in recognition of his long service as presiding officer of the Scientific Section of Minnesota Pharmaceutical Association. He has presided at each of the twenty annual sessions of the Section.

Frank Schachleiter, secretary of the Arkansas Board of Pharmacy, has announced that the board intends to inaugurate a vigorous enforcement of the pharmacy law of that state to correct certain conditions due to a laxity in observing some of the provisions of the act. A month's grace will be allowed, Mr. Schach-

leiter said, after which, if steps to comply with the law are not taken, the board will file information and seek prosecution. An extremely lax condition, which had its inception in oil boom towns, has spread throughout the state, according to Mr. Schachleiter, who added that similar alleged conditions exist throughout the Middle West.

Frank H. Carter, for more than thirty years active in the American Pharmaceutical Association, has sold his pharmacy in Indianapolis to his brother so as to devote more of his time to other interests. Mr. Carter was local secretary of the A. Ph. A. meeting of 1896 in Indianapolis. Mr. and Mrs. Carter attended the Asheville meeting.

Solomon Boehm, member of the A. Ph. A., for more than fifty years, celebrated his golden wedding anniversary January 27th at Hotel Bellclaire, New York City. All the children and about 100 other relatives were present. **Dr. Charles E. Caspari** represented the St. Louis College of Pharmacy on this happy occasion.

Edward V. Sheely, of Memphis, Tenn., celebrated the 25th anniversary of his pharmacy at the corner where he is still located during the week of March 2nd. Invitations to the store and prescription blanks were printed in silver ink to commemorate the occasion.

William H. Gano, Philadelphia, is making a rapid recovery following an eye operation, necessitated by the threatened loss of sight. It is gratifying to report that the operation was successful.

Edwin F. Leonard, member of the A. Ph. A., and Mayor of Springfield, Mass., is a prominent pharmacist of his home town where he formerly owned several stores, but increasing duties prompted him to dispose of all except one of them.

The Journal of Chemical Education has issued its third number and is measuring up to its mission. The first editorial of the number referred to considers the Metric System and the Editor points out an important fact—that in order to have these units generally adopted it will be necessary for those who use them in their work to also designate the quantities when ordering supplies. The practice is quite general to employ the old system in buying and selling and the metric system in manufacturing and dispensing.

Within an hour after the terrific explosion at the Nixon Nitration Company on March first which killed and injured many, Johnson and Johnson unloaded surgical dressings, antiseptics, medical supplies, etc., at the scene of the disaster. Trucks from the plant also brought quantities of food, thus relieving as far as possible the distress of the afflicted.

Eli Lilly and Company have given $25,000 to Butler College which is seeking an additional endowment of $1,500,000 and contemplates the construction of new buildings at Fairview Park, Indianapolis.

Fuller Morrisson and Company and Robert Stevenson and Company of Chicago have consolidated. The present-day tendency seems to be toward consolidation of business interests and in that way doing away with quite a large percentage of overhead expenses.

ANNUAL MEETING OF THE AMERICAN DRUGGISTS FIRE INSURANCE COMPANY.

The report of the annual meeting of the American Druggists' Fire Insurance Company shows that $48,076,490.50 of insurance was written by this company during 1923. This is an increase of $4,639,348.99 over the previous year. Fire losses amounting to $176,354.05 were paid and for reinsurance the sum of $137,064.22. The total assets of the company now amount to $1,101,676.60 and the net amount of surplus for the protection of policy holders amounts to $893,286.31. More than 90% of the assets of the company are invested in Government, county and municipal bonds. About 17,800 retail druggists in all parts of the United States are carrying some of their insurance with this company. The amount saved its policy-holders in the cost of their insurance during 1923 was $163,194. The following well-known pharmacists are directors of the company: Charles B. Avery, L. G. Heinritz, James H. Beal, Edward W. Stucky, William C. Anderson, Lewis C. Hopp, George O. Young, Edward Voss, Samuel C. Davis, John D. Muir, E. H. Thiesing, Walter Rothwell, M. C. Kahn, E. B. Heimstreet, and Frank H. Freericks. The company plans the erection of a home office building very soon after the necessary bond issue has been voted for the Central Parkway in Cincinnati.

Police Commissioner of New York, Richard E. Enright, has branded the statement that 17,000 school children in one borough of New York City are narcotic drug addicts. The "malicious propaganda," he said, "was published under the letter-head of the International Narcotic Association." Police and school records showed, he said, that not one of the 951,000 school children in New York City is addicted to narcotics.

OBITUARY.

JOHN AUSTIN ROBERTS.

John A. Roberts died January 21st, 1924, of acute nephritis, at Baltimore, Maryland. He entered the drug business in 1895, receiving his early instruction in practical pharmacy under his uncle, J. C. Roberts, '85, who was his preceptor on entry at the Philadelphia College of Pharmacy in 1898. He was graduated with the 1903 class in Special Chemistry. He was a member of the Alumni Association of the Philadelphia College of Pharmacy and also of the American Pharmaceutical Association. During his collegiate term, he was engaged by Dr. A. W. Taylor at Beverly, New Jersey, where he continued to reside and remained in the drug business for many years. During the last three years he was a member of the technical staff of Sharp and Dohme. His versatility in drug lines was known to many physicians and druggists, while his character and geniality won him a host of friends who mourn his loss.

He was buried in the town of his birth at the Wilmington Brandywine Cemetery, after services by Rev. Dr. Bell, rector of Old Swedes Church, Wilmington, Delaware. Beverly Lodge No. 107, A. F. & A. M., of which he was Past Master, conducted the Masonic services. He is survived by a widow and one son.

E. F. K.

GEORGE HOHMANN.

Dr. George Hohmann, member of the American Pharmaceutical Association since 1910, died at his home in New York City, February 25. He is an alumnus of the New York College of Pharmacy and soon after his graduation became an associate member of the faculty of his Alma Mater. He studied medicine at Fordham Medical College and thereafter for a time was physician in Knickerbocker Hospital. He continued his interest in pharmacy and frequently attended the local as well as the State pharmaceutical associations. The deceased is survived by his widow.

IN MEMORY OF EDGAR L. PATCH.

A sketch of the deceased appears in the March issue of the JOURNAL A. PH. A. The *Pharmaceutical Era* of March 22nd pays deserved tribute to Professor Patch in an editorial entitled "Cheers for the Living, Tears for the Dead"—the motto of the Chicago Veteran Druggists' Association. Dean Bradley writes that "the fine character of Professor Patch was appreciated by all who came in contact with him, and was strikingly shown in his family life. The place he held in the affections of his townspeople was shown by the great crowd which filled both the main auditorium and the chapel of the First Baptist Church at his funeral on Sunday, March 2."

The *Stoneham Independent* gave several columns to an account of his useful life and referred to him as one of Stoneham's loyal and beloved citizens.

"At the age of eighteen he was smitten with tuberculosis, but the determination to overcome obstacles which characterized his studious and business efforts won for him control over the disease, which carried away his father, three brothers and two sisters." The story of his success should encourage the young pharmacist who halts because of obstacles of minor significance compared with those of our lamented Ex-President Edgar L. Patch.

SOCIETIES AND COLLEGES.

THE HEADQUARTERS CAMPAIGN IS AWAKENING PHARMACY TO A REALIZATION OF GREATER OPPORTUNITIES.

BY CHARLES H. LAWALL.

No person who has been a member of the American Pharmaceutical Association and attended its annual meetings during recent years, or kept in touch with its proceedings, is surprised at the volume of commendations of the Fund campaign which have poured in, in response to the request for expressions of opinion. Members of other professions are amazed, however, and have voiced such amazement openly.

One of the permanent officers of a great national association with 15,000 members—an organization with offices in Washington, but which has no permanent headquarters or building of its own—expressed much amazement during a recent conference. "Do you mean to say," said he, "that the American Pharmaceutical Association can collect funds for a build-

ing just by asking its members for them and not by selling bonds or some such profit-ensuring plan?" When I answered in the affirmative and added that upward of $100,000 had already been pledged, although the formal drive had not yet begun, he looked at me in astonishment.

And yet, why should this not be so? Who is there among us who is so disloyal as to doubt the ultimate success of our movement or that it will not be enthusiastically supported by every one truly interested in pharmacy.

It will be supported by the retail pharmacists because they will realize the increased prestige that will come to pharmacy as a calling when its chief professional association is adequately established in a building planned to house representatives of related groups with common aims.

It will be supported by the wholesale pharmacists, both independent and coöperative, because they, too, will share in this prestige, and because it will make for the more material success that always accompanies progress in any group or profession.

It will be supported, generously supported, by manufacturing interests, who will look upon such contributions not so much as gifts as investments in the future progress of pharmacy, progress which will insure the perpetuation of policies in which scientific advancement and commercial success will be successfully joined not only in the interest of pharmacy itself but also in the interest of the public which pharmacy serves.

It will be supported by the educators in pharmacy because anything that makes for pharmaceutical progress will be of benefit in raising the standards and lengthening the courses to keep pace with the confidence which the public places in the pharmacist as an educated man, one of great usefulness and high standing in the community.

We are on the verge of a great awakening in pharmacy—an awakening that means much to us of the present but still more to future generations of pharmacists. Let us therefore join in the movement enthusiastically and with confidence in its ultimate success.

PARTIAL LIST OF ADVANCE SUBSCRIPTIONS FOR PHARMACY HEADQUARTERS BUILDING FUND.

J. W. Westcott, Baltimore, Md.	$2,500.00
Johnson & Johnson, New Brunswick	10,000.00
Lehn & Fink, New York, N. Y.	3,000.00
H. A. B. Dunning, Baltimore, Md.	10,000.00
Muth Bros., Baltimore, Md.	1,000.00
Illinois Pharm. Assoc.	500.00
Indiana Pharm. Assoc.	500.00
Iowa Pharm. Assoc.	500.00
Minnesota Pharm. Assoc.	500.00
Missouri Pharm. Assoc.	500.00
Lambert Pharmacal Co., St. Louis	1,000.00
Abbott Laboratories, Chicago, Ill.	1,000.00
William R. Warner & Co., New York	10,000.00
E. R. Squibb & Sons, New York	5,000.00
Carleton & Hovey Co., Lowell, Mass.	1,000.00
Armand Company, Des Moines, Iowa	5,000.00
Sharp & Dohme, Baltimore, Md.	5,000.00
Ciba Company, New York, N. Y.	500.00
L. L. Walton, Williamsport, Pa.	500.00
Cleveland, Ohio, Branch of A. Ph. A.	500.00
Eli Lilly & Co., Indianapolis, Ind.	5,000.00
Mu-Col Co., Buffalo, N. Y.	500.00
Mead Johnson & Co.	500.00
Faculty, Pittsburgh Coll. of Pharmacy	1,000.00
Seabury & Johnson, New York	1,000.00
1924 Class Pitts. Coll. of Pharmacy	1,700.00
1925 Class Pitts. Coll. of Pharmacy	1,050.00

These subscriptions are added indications of the serious interest that is being developed in this great project.

STATE CHAIRMEN FOR HEADQUARTERS CAMPAIGN.

Alabama—Carl Whorton, c/o Gadsden Wholesale Drug Co., Gadsden.

Arizona—A. G. Crouch, Douglas.

Arkansas—Frank Schachleiter, Box 97, Little Rock.

California—W. Bruce Philip, 593 Market St., San Francisco.

Colorado—Chas. J. Clayton, 1838 Vine St., Denver.

Connecticut—Chas. T. Hull, 141 Dixwell Ave., New Haven.

Delaware—N. B. Danforth, John O. Bosley, Wilmington (tentative).

District of Columbia—S. L. Hilton, 1023 22nd St., N. W., Washington.

Florida—John West, Tarpon Springs.

Georgia—Dr. R. C. Hood, Southern College of Pharmacy, 52 Pine St., Atlanta.

Idaho—C. O. Ballou, McCarty Bldg., Boise.

Illinois—S. L. Antonow, 1360 S. Springfield St., Chicago.

Indiana—Dean C. B. Jordan, Purdue University, Lafayette.

Iowa—Dean E. O. Kagy, Des Moines University, Des Moines.

Kansas—John Chism, 150 N. Main St., Wichita.

Kentucky—C. B. Davis, 1st & Breckenridge Sts., Louisville.

Louisiana—Joseph Berner, Pres. La. Ph. A., 4700 Freret St., New Orleans, La.

Maine—Dr. Martin L. Porter, Danforth.

Maryland—R. E. Lee Williams, 106 West Redwood St., Baltimore.

Massachusetts—James C. Fausnaught, 300 Main St., Worcester.

Michigan—E. R. Crandall, Cass Technical High School, Detroit.

Minnesota—John P. Jelinek, 961 W. 7th St., St. Paul.

Mississippi—Gus C. Kendall, 4 S. 22nd Ave., Meridian.

Missouri—F. H. Fricke, 19th and Madison, St. Louis.

Montana—Alex. F. Peterson, Missoula.

Nebraska—Smith C. Wilson, Lincoln.

Nevada—N. E. Wilson, Reno; F. M. Clark, Ely (tentative).

New Hampshire—William D. Grace, 14 Market Square, Portsmouth.

New Jersey—Edward A. Wickham, 540 Norwood St., East Orange.

New Mexico—Bernard C. Ruppe, 203 Central Ave., Albuquerque.

New York—R. R. Lampa, 635 Greenwich St., New York City.

North Carolina—John G. Beard, Chapel Hill.

North Dakota—Oscar Hallenberg, Fargo.

Ohio—Theodore D. Wetterstroem, 514 Schultz Bldg., N. High St., Columbus.

Oklahoma—H. S. Caldwell, 330 No. Grand Ave., Oklahoma City.

Oregon—Louis G. Clarke, Alder St., and West Park, Portland.

Pennsylvania—P. Henry Utech, 209 Chestnut St., Meadville.

Rhode Island—Edwin P. Anthony, Albert W. Claflin, Providence (tentative).

South Carolina—Dr. W. H. Zeigler, Medical College of S. C., Charleston.

South Dakota—George Williams, Reliance.

Tennessee—William R. White, Nashville.

Texas—J. L. Horn, Houston and 9th St., Fort Worth.

Utah—John Culley, 2479 Washington Ave., Ogden.

Vermont—Fred B. Pierce, Barton (tentative).

Virginia—Dean W. F. Rudd, Medical College of Virginia, Richmond.

Washington—Louis Rubenstein, Cobb Bldg., Seattle.

West Virginia—Prof. G. A. Bergy, Morgantown.

Wisconsin—G. V. Kradwell, Racine.

Wyoming—Ray J. Cook, Casper (tentative).

BULLETINS OF THE DRUG TRADE BUREAU OF PUBLIC INFORMATION.

Director Robert P. Fischelis of the Drug Trade Bureau of Information has issued quite a number of bulletins since the first of the year. Bulletins 1 and 2 were mentioned in the March issue, page 273. Reference to Bulletins B 3–B11 will follow. The director says that fine results are being accomplished in the way of newspaper accounts of these bulletins and that a greater volume of accurate news concerning pharmacy is appearing in the lay press. Readers are requested to coöperate by inducing the local papers to make use of these bulletins; also by sending clippings of these news items to the Director whose address is 509 High St., Newark, N. J.

Bulletin B 3 gives publicity to the American Pharmaceutical Association Research Fund, reference to which has been made on page 173 of the February issue, and also on page 245 of the March number.

Bulletin B 4 relates to the annual meeting of the American Drug Manufacturers' Association held in New York City on April 7, also Bulletin B 7. These give details of the interesting program which included discussions on narcotic and other legislation, the adoption of a code of ethics, etc. The sessions were held at the Biltmore Hotel.

Bulletin B 5 outlines the coöperative plan for collecting funds for the Headquarters Building. Progress is reported and an outline of what the American Pharmaceutical Association has achieved is presented by Dr. James H. Beal.*

Bulletin B 6 gives information on the prize essay contest promoted by the National Wholesale Druggists' Association. The subject for discussion is "The Essential Value of the Wholesaler to the Retailer." The drug journal publishing the most meritorious paper will receive a prize of $100 and a like amount will be awarded the author. Second and third prizes are also offered, the former of $50 and the latter of $25. The papers are not to exceed 2500 words and must be in the hands of the Secretary, Mr. C. H. Waterbury, 51 Maiden Lane, New York by July 1st. Special consideration will be given to the authors whose

* See pp. 5, 97, 174, January and February JOUR. A. PH. A.

papers show considerable thought and the judges will base their decisions on range, style, interest, points and general strength of the papers.

Bulletin B 8 makes reference to the recently published "Compilation of Federal and State Laws Relating to Pharmacy." This compilation has been issued in a book of nearly 900 pages. It includes the National Food and Drugs Act of June 30, 1906 and regulations for its enforcement; the National Prohibition Act; the Supplemental Prohibition Act and all other federal laws relating to alcohol and intoxicating liquors as handled by the drug trade; the National Insecticide Laws and regulations for its enforcement; the Harrison Anti-Narcotic Law and regulations; the Federal Trade Commission Law; the Food and Drugs Acts of Canada and the various state laws relating to the manufacture and sale of food and drugs, medicines, etc. The Standard Remedies Publishing Company, Incorporated, of Washington, D. C., and Chicago have published this work and have succeeded admirably in this compilation of laws affecting pharmacy and the drug trade.

Bulletin B 9 relates to "The Drugless Drug Store." Samuel C. Henry, Secretary of the National Association of Retail Druggists, expresses what may be regarded as the views of the greater number, at least, of those engaged in the drug business relative to the misuse of the term "drug store." He considers the argument that the public will be able to distinguish between regular drug stores and those of the drugless type fallacious. If this was not the belief of those who are engaged in the drugless type of store, they would not use the term drug store. It would be a travesty upon justice to permit drugless drug stores to be operated. Drug stores have for generations rendered valuable service and they are regulated and controlled by laws enacted in the interest and for the protection of the public.

Bulletin B10 relates to the so-called reform legislation. On this subject Dr. James H. Beal delivered a comprehensive address at the last annual meeting of the National Association of Retail Druggists entitled "The Force Behind the Law." Parts of this address have been published in the Journal on pages 934 and 1149 of Vol. 12 (1923).

ANNUAL MEETING OF TOILET GOODS MANUFACTURERS.

The thirtieth annual convention of the American Manufacturers of Toilet Articles will be held at the Hotel Biltmore, New York, on April 22, 23, and 24. Walter Hathaway, Colgate & Co., is chairman of the Convention Committee.

OFFICERS OF MINNESOTA PHARMACEUTICAL ASSOCIATION.

The following officers elected by mail ballot were installed at the closing session of the recent annual convention:

President, Charles C. Crosby, Buhl.

First Vice-President, R. H. G. Metz, Owatonna.

Second Vice-President, Charles E. Peterson, Madison.

Third Vice-President, Roy R. Lambert, International Falls.

Secretary, Gustav Bachman, Minneapolis.

Treasurer, H. Martin Johnson, St. Paul.

Executive Committee: W. E. Burke, St. Paul. Term expires 1927. H. C. Trowbridge of Minneapolis continues on Executive Committee until 1926. E. A. Grochau of Duluth continues on the Committee until 1925.

NEW JERSEY PHARMACEUTICAL ASSOCIATION.

A number of the members of the Board of Trustees, Local Secretary Crooks, and Mr. George W. Buckens of the T. M. A., at a recent meeting with Manager Harry Latz of the Alamac-in-the-Mountains, arranged the preliminaries for the 54th Annual Session to be held at Lake Hopatcong, June 10–13.

A further item of general interest is the following:

"The Remington Honor Medal has been awarded to our own George M. Beringer, a veteran member of the New Jersey Pharmaceutical Association. The New York Branch of the American Pharmaceutical Association has graciously arranged to have the presentation made in Mr. Beringer's home state. The medal will be presented at a special meeting of the Branch, which will be held at the Hotel Robert Treat in Newark on the evening of April 14th, 1924. This affords an opportunity to honor one of our most illustrious and prominent members. We are positive that many of Mr. Beringer's fellow members will be on hand to help celebrate this important event. Dean Fischelis, Chairman of the Committee, is arranging to have several leaders of American Pharmacy present, who will bring messages of esteem and appreciation from "away from home." Remember the place and date—Ho-

1924 STATE PHARMACEUTICAL ASSOCIATION MEETINGS.*

STATE.	DATE.	PLACE.	PRESIDENT.	SECRETARY.	LOCAL SECRETARY.
Alabama	June 4–5	Auburn	R. F. Lovelady, Birmingham	W. E. Bingham, Tuscaloosa	S. L. Turner
Arizona	October	Douglas	A. G. Grouch, Douglas	A. G. Hulett, Phoenix	
Arkansas	May 13–15	Little Rock	Ed. Bradley, Hot Springs	Mary A. Fein, Little Rock	
California	May 27–29	Pasadena	Harry A. Dutton, Los Angeles	Thos. W. Jones, Los Angeles	E. W. Salisbury
Colorado	June 17–19	Estes Park	H. S. Coulson, Boulder	Chas. J. Clayton, Denver	
Connecticut	June 24–25	New London	S. H. Williams, New Haven	P. J. Garvin, Middletown	Ira Comstock
Delaware	June 5	Wilmington	N. B. Danforth, Wilmington	Thomas S. Smith, Wilmington	
District of Columbia		Meets Monthly	Paul Pearson, Washington	Norman D. Parker, Washington	
Florida			Leon Hale, Tampa	J. H. Haughton, Palatka	
Georgia	June 17–18	Albany	Thomas H. Brannen, Atlanta	T. A. Cheatham, Atlanta	Thomas C. Marshall, Atlanta
Idaho		Boise	B. M. Hines, Pocatello	T. M. Starrh, Boise	
Illinois	June 24–27	La Salle	James P. Crowley, Chicago	W. B. Day, Chicago	W. J. Claney, La Salle
Indiana	June 17–19	Culver	Jos. W. Weis, Hammond	Wm. A. Oren, Indianapolis	
Iowa	February 5–8	Des Moines	H. E. Jones, Clarinda	Al Falkenhainer, Algona	Present officers (1923)
Kansas	May 13–15	Topeka	Frank A. Milne, Pratt	J. Will Kelley, Topeka	
Kentucky	June 17–19	Crab Orchard	Wm. H. Fischer, Louisville	J. W. Gayle, Frankfort	
Louisiana	May 20–21	Shreveport	Joseph H. Berner, New Orleans	George W. McDuff, New Orleans	W.W. Echard, Morris-Dickson Co.
Maine	September 24–26	Poland Spring	M. L. Porter, Danforth	A. F. Knapp, Yarmouthville	
Maryland			Chas. L. Meyer, Baltimore	E. F. Kelly, Baltimore	
Massachusetts	June 11–13	Swampscott	Fred E. Jones, Lowell	James F. Guerin, Worcester	
Michigan	June 4–6	Flint	D. D. Alton, Fremont	Louis V. Middleton, Grand Rapids	C. C. Cataline, Flint
Minnesota	February 12–14 (1924)	St. Paul	Chas. C. Crosby, Buhl	Gustav Bachman, Minneapolis	
Mississippi	June 10–11	Vicksburg	W. H. Rayner, Vicksburg	A. S. Coody, Jackson	A. C. Strealy
Missouri	June 10–13	Springfield	F. H. Fricke, St. Louis	C. C. Payne, Kansas City	E. Earl Morton
Montana	2nd week in July	Helena	Fred Russell, Billings	J. A. Riedel, Boulder	Louis Fish
Nebraska	June 10–12	Grand Island	Loran Jordan, David City	J. G. McBride, University Place	
New Hampshire	June 26–27	Hotel Wentworth, Newcastle	A. O. Burque, Nashua	D. Leo Hallisey, Nashua	
New Jersey	June 10–13	Lake Hopatcong	Daniel H. Hills, Spring Lake	Jeannot Hostmann, Hoboken	Harry W. Crooks, Mt. Arlington
New Mexico			B. Ruppe, Albuquerque	Mrs. M. L. Powell, Albuquerque	
New York	June 17–22	Lake Placid	Emory H. Breckon, Buffalo	E. S. Dawson, Syracuse	Geo. F. Bigham, Buffalo
North Carolina	June 24–26	Wrightsville Beach	P. A. Lee, Dunn	J. G. Beard, Chapel Hill	J. D. Nutt, Wilmington
North Dakota	August 5–7	Fargo	Ray Stinson, Pembina	W. F. Sudro, Fargo	Roy G. Cook, Fargo
Ohio	July 14–18	Cedar Point	W. L. Whelton, Akron	Theo. D. Wetterstroem, Columbus	Lewis A. Biehl, Sandusky
Oklahoma	April 15–17	Ardmore	Roscoe E. Hadley, Oklahoma City	H. S. Shackelford, Wynnewood	Tom Frame
Oregon		Eugene	L. L. Coleman, Portland	A. W. Allen, Portland	
Pennsylvania	June 17–19	Bethlehem	P. Henry Utech, Meadville	Louis Saalbach, Pittsburgh	
Rhode Island	July 25		Franklin N. Strickland, Johnston	William Shallcross, Pawtucket	
South Carolina		Orangeburg	T. P. Young, Greenwood	Frank M. Smith, Charleston	W. J. Wannamaker
South Dakota	August	Rapid City	William E. Bissell, Plankinton	D. F. Dexter, Canton	C. B. Baldwin, Rapid City
Tennessee	July 15–17	Nashville	D. S. Sanders, Nashville	Wm. P. Winter, Nashville	L. S. Pulley, Nashville
Texas	June 10–12	Austin	W. H. Wentland, Manor	W. D. Adams, Forney	J. W. Graham, Austin
Utah	June 18–19	Ogden	Eugene L. Wade, Salt Lake City	John Culley, Ogden	
Vermont	June 23–24	Fairlee	Urban S. Livingston, Newport	F. W. Churchill, Proctor	
Virginia	June 24–26	Natural Bridge	S. C. Brooks, Winchester	A. L. I. Winne, Richmond	Percy Traylor, Roanoke
Washington	June 23–25	Olympia	Harry S. Elwood, Ellensburg	H. K. Fogarty, Seattle	
West Virginia	June 16–19	White Sulphur Springs	Fred B. Watkins, Grafton	R. B. Cook, Charleston	
Wisconsin	June 24–27	Green Lake	E. S. Hebberd, La Crosse	W. O. Richtmann, Madison	B. F. DeHosson
Wyoming		Casper	R. C. Schultz, Worland	L. R. Tyson, Jr., Sheridan	

* Secretaries will oblige by making corrections and sending list of new officers to JOURNAL A. PH. A., 253 Bourse Building, Philadelphia, Pa.

tel Robert Treat, Newark, April 14th, 1924."

Another matter relative in which there practically is unanimity of action is—opposition to the Cramton Bill, H. R. 6645, successor to the Wood-Ernst bill, creating a prohibition bureau independent of the Commissioner of Internal Revenue—it should be defeated. It has drawn the fire of all alcohol using industries, as it will subject them to the supervision of inexperienced and at times biased prohibition enforcement officials in place of the present experienced internal revenue officials.

NEW OFFICERS OF BOSTON ASSOCIATION OF RETAIL DRUGGISTS.

The new officers of the Boston Retail Druggists' Association are: President, John R. Sawyer; first vice-president, Sidney V. Rintels; second vice-president, C. Fred Wright; third vice-president, Anthony J. Ziegel; secretary, Charles H. Davis, and treasurer, Lyman W. Griffin. In turning over the gavel to his successor at the meeting of March 12th, retiring President John J. Tobin, who has served the association faithfully during the past seven years, spoke most feelingly of the pleasant relations established and maintained during the years it had been his privilege to preside. Immediately following this touching incident, Frank Ernst took the floor and in well-chosen words presented the retiring president with one of the celebrated Chelsea marine clocks, inscribed as follows: "Presented to John J. Tobin by the Boston Association of Retail Druggists 1924 in appreciation of his faithful and unselfish service." After Mr. Tobin had expressed his thanks to the members for their thoughtfulness in thus remembering him, Herbert Packard presented C. Fred Wright with a solid gold Hamilton watch and chain to match, expressing at the same time the association's appreciation of the valuable service rendered. Immediately following this presentation Dean Theodore J. Bradley of the College of Pharmacy arose and after making some highly eulogistic remarks concerning the service rendered the association by James F. Finneran, brought his remarks to a close by presenting him with a very beautiful Waltham watch and chain. The recipients were taken completely by surprise and somewhat overwhelmed by this demonstration of friendship and appreciation.

SOUTHERN BOARDS HOLD CONFERENCE.

Members of the boards of pharmacy of Alabama, Georgia, Florida, Louisiana and Mississippi, representing the seventh district of the National Association of Boards of Pharmacy, held a conference at Birmingham, Ala., on February 14. At the close of the conference W. P. Porterfield, of Fargo, N. D., and H. C. Christensen, of Chicago, secretary of the National association, were guests of the druggists at a banquet held at the Tutwiler Hotel.

NEW MEXICO STATE BOARD OF PHARMACY.

Secretary D. W. Haydon, Clayton, New Mexico, announces that the New Mexico Board of Pharmacy will meet for holding examinations of candidates in the Albuquerque Chamber of Commerce, May 26–28.

PHARMACY COLLEGE AS GIFT TO THE PUBLIC.

According to the *Pacific Drug Review* for March, the dedication to public use of the North Pacific College by its founder Dr. Herbert C. Miller—an outright gift, worth at least $300,000, to the public interest, has been announced. It is quite the most magnificent donation of the kind announced in the west in recent years. North Pacific College is well known for its schools of dentistry and pharmacy and is being changed by its founders from proprietary ownership to that of a board of trustees who will conduct the college in future as a public or endowed institution, the organization being similar to that of Reed College. Papers were filed with the secretary of state of Oregon on January 22, creating a new corporation and board of trustees and providing for their perpetuation.

MIDWEST DRUG AND HEALTH SHOW.

Secretary Theodore D. Wetterstroem has been sending out bulletins giving account of the progress made in the program of the Midwest Drug and Health Show to open in Columbus, Ohio, April 21. The purpose of the show is to demonstrate to the public the many service features of the drug store and the important part it plays in conserving the health of the community and thereby also enhancing the prestige of the State Pharmaceutical Association and pharmacists generally. A part of the proceeds will be donated to the proposed Headquarters Building of the American Pharmaceutical Association. Dr. E. L. Newcomb of the University of Minnesota will speak on the headquarters building campaign.

Wisconsin.....Green Lake.....E. S. Hebberd, La Crosse.....W. O. Richtmann, Madison.....B. F. DeHosson.....
Wyoming.....June 24–27.....Casper.....R. C. Schultz, Worland.....L. R. Tyson, Jr., Sheridan.....

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Dr. H. M. Whelpley is on the program for an illustrated lecture on "Medicinal Plants Used by the Indian Medicine Men," and Dr. C. A. Mayo of Cincinnati will give an illustrated lecture on "Medicinal Plants Grown in the United States." It is hoped to have Dr. Lyman F. Kebler of the Bureau of Chemistry give an illustrated lecture on "Bread Making."

The days of convention week have been designated according to the special features or attractions and named for cities to be represented by large numbers on the respective days. The show is being advertised throughout Ohio and a large attendance is expected from all sections of the state. On each afternoon of the week a sales clinic will be conducted by men well known for their professional standing and as salesmen and merchants. Special entertainments will be provided each day and the Women's Pharmacy Club will have a booth for the sale of their handiwork, the proceeds of which will be turned over to the Women's Club Building of the Columbus Women's Federation. When the last bulletin was issued practically all of the booths had been spoken for and there is every indication of great success for the undertaking.

THE TEXAS DRUG SHOW.

The second annual drug show conducted by the Texas Pharmaceutical Association will be held during convention week beginning June 10. Sam P. Harben, a past president of the Association, is manager of the drug show. He has closed a contract with the Stephen F. Austin Hotel for the entire lobby and this is to be used for display space. There is every indication of success and this will add largely to the educational features of the convention. The attendance is expected to be nearly 2000.

The Texas Pharmaceutical Association has determined to see that the pharmacy law of Texas is enforced and in order to assist in this work a fund has been collected among the druggists, both wholesale and retail, for defraying the expenses of a man constantly in the field. The responses have been very satisfactory. In some cities the local associations have taken up this work and are also meeting with success. The slogan of these bodies is to ask candidates for the offices of County and District Attorney to pledge themselves for enforcement of the pharmacy law, if they expect to have the vote and support of the druggists of Texas

THE PHARMACIST AND THE LAW.

THE MAKING OF LAWS.

In a recent address R. E. L. Saner, president of the American Bar Association said: "If the directors of a business to-day were to take the attitude of the directors of our Government as they sit in the Capitol that firm would be doomed to destruction. The vote on any question is settled largely on party lines."

Amendments to the Constitution are looming up and the grind of laws is almost continuous. The question of the likelihood of enforcement of proposed laws to the degree of effectiveness is always relevant in formulating legislative measures; this fact, unfortunately, does not always receive the attention that it is worthy of. When a measure is enacted in disregard of that consideration such legislation may create harm instead of good, induce disrespect instead of obedience of laws.

PROTEST THE CRAMTON BILL.

James B. McGovern, general attorney of the United States Chemical Company recently said: "In its scope and subtleties the Cramton bill (H. R. 6645) presents an even greater menace to American chemical industry than contained in the Ernst-Wood Bill of the 67th Congress which as a result of the nationwide opposition of scientific societies and commercial organizations failed of passage.

In the Cramton Bill the lines of the latter measure were quite closely followed and there are added provisions the practical effects of which are to enlarge the jurisdiction of the Prohibition Commissioner by transferring to him certain powers exercised by the Commissioner of Internal Revenue. And to make certain that the new bureaucrat would be clothed with authority without limitation, the bill includes under his rule "Any other statutes or parts of statutes to the extent to which they similarly prohibit tax, control or regulate" liquors or narcotics.

Under the Cramton Bill the administration of all denatured alcohol laws would be removed from the Internal Revenue Bureau and placed under the domination of a Prohibition Commissioner and his police force.

The Cramton Bill in its present form is unworkable from an administrative point of view and it is more than likely that the services of pharmacists for the sick would thereby be

handicapped more than ever. This also applies to the use of alcohol in the manufacturing industries, which from a standpoint of urgency is of great significance. Do your part and inform your patrons of the importance of protesting the enactment.

INTERNATIONAL CONFERENCES ON OPIUM.

The United States is represented at the meeting of the Committee in Geneva to plan the program and work of the two international conferences to be held there next November. The special committee which is drawing up the program is composed of representatives from France, Great Britain, and Holland and Sir John Jordan of the Opium Commission of the League of Nations and Edwin L. Neville of the Department of State. Germany, Bolivia, Greece, India, Japan, Persia, Russia, Switzerland and Turkey have been invited by the League Council to appoint representatives who might be called upon to collaborate with this preparatory committee. The first conference in November will deal largely with smoking opium. The second conference will consider a measure limiting the manufactures of the alkaloids of opium and of cocaine. To this second conference governments that are members of the League or parties to the 1912 convention on opium traffic will be invited. These two conferences have been brought about to a large extent by the delegation from the United States in May 1923.

VIRUS AND SERUM ACT OF 1902.

Senator Copeland and Representative Rathbone have introduced a bill to amend the Virus and Serum Act of 1902 which relates to the sale of biological products in the District of Columbia, but it would apply also to biologics in interstate commerce.

At recent hearings Dr. John Anderson who, as former chief of the Government Hygienic Laboratory helped to draft and for several years administered the present Virus and Serum Act, said that it is working satisfactorily and he opposed the pending bill as unnecessary and complicating matters.

The attitude of some producers of biologics is said to be that the matter should be left to the physicians of the country and that if they want the practice of their profession restricted, it would be satisfactory to the manufacturers. The Illinois Medical Society and the Chicago Medical Association also oppose the bill and Commander Butler of the U. S. Navy speaking for the Surgeon General of the Navy endorsed the statements by the Illinois medical experts. It is also reported that Surgeon General Ireland of the Army opposes the bill. Surgeon General Hugh Cumming of the Public Health Service spoke briefly against the provisions of the bill. Director McCoy, Hygienic Laboratory, endorsed the purpose of the bill but stated that the proposed measure was impracticable.

The Committee has received many protests from medical and pharmaceutical circles against the bill; one of such protests came from S. L. Hilton of the American Pharmaceutical Association.

SENATE HEARINGS ON "DIPLOMA MILLS."

Following a hearing of the Senate Committee investigating "diploma mills" on March 6 at which time Assistant Commissioner of Education of the State of New York—Augustus S. Downing—was present, Senator Copeland requested the latter to prepare a bill for the District of Columbia which would be a model for the states. It was stated that such a bill would place educational institutions in the District of Columbia under the United States Bureau of Education. The Committee also decided to confer with postal officials relative to steps which would curb the use of the mails by correspondence schools that sell degrees.

PHARMACISTS SHOULD BE INFORMED RELATIVE TO LAWS APPLYING TO PHARMACY AND THE DRUG BUSINESS.

The *P. A. R. D. Bulletin* for March publishes laws governing pharmacy in Pennsylvania that are being rigidly enforced. Points from these laws are given herewith. A permit is required of every person, firm or corporation to conduct a pharmacy or retail drug store. A fine of $200 is fixed for non-compliance.

The owner or manager of a pharmacy is subject to a fine of $100 for leaving an unregistered person in charge and the latter is liable to a fine of $50 if in charge of such an establishment. He is also liable to a fine of $500 for compounding a physician's prescription except under the immediate supervision of a pharmacist or assistant pharmacist.

Such designations as "drug store," "medicine store," "pharmacy" for signs, labels or in advertising can only be used by a registered

pharmacist or by a place where such person is in charge. A fine of not less than $50 applies. Non-display of certificates by owner and registered pharmacists subjects the violators to a fine of $10 and costs.

Every pharmacy must have the latest editions of the U. S. Pharmacopœia and National Formulary and every owner of a pharmacy is held responsible under the law for the purity and quality of the drugs and preparations dispensed in the store whether prepared on the premises or purchased from jobbers or manufacturers.

The Federal Government requires that the drug store proprietor who is not a registered pharmacist in making application for a permit to handle non-beverage spirits must give the name of the registered pharmacist in charge. The drug store proprietor even though himself a registered pharmacist, if he operates more than one drug store, must name on the permit the registered pharmacist in charge of the store or stores not under his personal charge.

PENNSYLVANIA RULES STANDARD THREE YEAR PHARMACY COURSE BEGINNING IN 1925.

(Bulletin B 11 Drug Trade Bureau of Public Information.)

The State Board of Pharmacy of Pennsylvania has adopted the following rule for a minimum course in a college of pharmacy, qualifying applicants for admittance to its pharmacy licensure examinations on and after June 1st, 1928.—L. L. WALTON, *Secretary*.

"Beginning with the fall of 1925, the minimum course of instruction given by a College of Pharmacy, recognized by the Pennsylvania Board of Pharmacy, shall be *three* years, covering 2250 hours of instruction. The course shall consist of not less than 40 per cent. instruction in lectures and recitations, and not less than 40 per cent. laboratory work."

INDIANA COLLEGES ADOPT THREE YEAR COURSES.

In accordance with the action of the American Conference of Pharmaceutical Faculties and complying with the expressed wish of the pharmacists of Indiana, the Purdue University School of Pharmacy, the Valparaiso University School of Pharmacy, the Indianapolis College of Pharmacy, and the University of Notre Dame Department of Pharmacy have adopted the three-year minimum course to begin in the fall of 1925. This means that the last class to enter a two-year course in these colleges will be the class that enters in the fall of 1924, and that the last class to graduate from a two-year course will be the class that graduates in the spring of 1926.

NEW YORK STATE NARCOTIC LAW PROPOSED.

An act amending the New York State public health law in relation to habit forming drugs, introduced in the Senate by Mr. Kennedy, has been referred to the Committee on Public Health. The act would provide for practically the same regulations and control which existed prior to the creation of the Narcotic Control Board.

The act allows manufacturers and dealers to sell freely to each other and a pharmacist to sell upon a proper prescription. Physicians, dentists and veterinarians are permitted to prescribe and administer narcotics. The act provides that a record of each transaction must be kept for two years after it takes place. A number of features regarding labels and the like which were held objectionable by the American Pharmaceutical Association in the first draft of the bill, were eliminated before its introduction in the Senate.

BOOK NOTICES AND REVIEWS.

The well-known firm of Theodor Steinkopff, Dresden—Blasewitz, publishers of pharmaceutical, chemical and technical works and also of the old *Pharmazeutische Zentralhalle* established by Dr. Hermann Hager in 1859, favored us with the following books for review:

Klinische Kolloidchemie, Von Dr. Ernst Joël. Octavo, 124 pp.

The book contains 9 lectures by a practicing physician at the Hospital Moabit in Berlin on colloidal chemistry in clinical medicine. Ever since Thomas Graham, F. R. S. and Master of the Mints, laid the foundation to colloidal chemistry with his lecture "Liquid Diffusion Applied to Analysis" before the Royal Society of London on June 13th, 1861, this new chemistry, the dawn between physics and chemistry, has made great strides, especially in the last few years.

The application of colloidal chemistry in medicine and pharmacy is of the greatest

importance and the book before us throws much light on this subject.

Kolloide in der Technik, Von Raphael Ed. Liesegang. Octavo, 157 pp.

The 14 chapters of the book deal with: Glue and Gelatin, Adhesives, Protectives, Plastic Masses, Tanning, Soaps, Oils and Resins, Rubber, Paper, Textiles, Metals, Ceramics, Foods and Photography. Truly quite a variety of subjects. Nevertheless even the pharmacist can learn much by looking through this book. An author's index of seven pages in double columns and a subject index of three pages in double columns prove the variety of contents.

Physikalische Chemie, Von Dr. Alfred Benrath. Octavo, 107 pp.

This is Volume VIII of the Natural Science Series in which the wide-awake publisher collects all the new data since the beginning of the World War. The book before us is written by the well-known authority, Dr. Alfred Benrath, Professor of Chemistry at the University of Bonn. The 2 parts of the volume are: I. Physical Chemistry as Applied to C. P. Chemicals: Relation between the Properties of Elements and Compounds; Theory of Allotropism. II. Physical Chemistry as applied to Solutions: Remarks to van't Hoff's Theory; Solutions of Electrolytes; Theory of Electrolytic Dissociation; Solvat-Theory.

A very complete author's and subject index of nine pages concludes this excellent book, a very distinct contribution to physical chemistry and its newer developments.

Carl Thiersch. Sein Leben, Von Justus Thiersch. Mit 4 Bildnissen. Octavo 190 pp. Johann Ambrosius Barth, Leipzig.

In a paper "Pharmaceutical Events in 1822" read before Section on Historical Pharmacy, A. Ph. A., Cleveland meeting 1922 (JOUR. A PH. A., Feb. 1923, pp. 153–158) the writer briefly mentioned the birth of Carl Thiersch, professor of surgery at the University of Leipzig. It is, therefore, a double pleasure to review a book containing the biography of this authority written by his oldest son. The book is systematically arranged from birth to death—a true biography—and we want to mention a few chapters and extracts. Born April 20, 1822, in Munich, the son of Professor Friedrich Thiersch, he graduated from the gymnasium in 1836, entered the University of Munich and began the study of medicine in 1840. He made further studies at the Universities of Berlin, Vienna and Paris and obtained his "Doctor Med." in 1846 with a thesis, "On the Action of Medicines," at the University of Munich, where he became prosector of anatomy. From 1854–1867 he occupied the chair of surgery at the University of Erlangen and from that date until his death, April 18, 1895, the one at the University of Leipzig. With interest do we note that in 1854 Carl Thiersch married Johanna, the second daughter of Professor Justus von Liebig. In the appended bibliography we find that Thiersch introduced salicylic acid as an antiseptic in surgery in 1873. His name will forever live in pharmacy and medicine as Thiersch's Solution and Thiersch's Powder.

We must not forget to compliment the publishers as to the printing, illustrations and binding of the book which we can highly recommend to all interested in history and biography.

Justus Liebig und seine Zeit. Von Prof. Alfred Benrath. 12 mo. 120 pp. Velhagen und Klasing. Bielefeld und Leipzig.

A popular edition of the biography of the great chemist and his time by an author who is professor of chemistry at the University of Bonn. The 10 chapters of the book deal with: Liebig as Student, Professor in Giessen, Events in 1840, Agricultural Chemistry, Animal Chemistry, Events in 1848, Chemical Letters, Professor in Munich and Last Years of Liebig.

However, the author neglected to state that originally Liebig was apprenticed to Apotheker Pirsch in Heppenheim (Hessen) where he spent ten months. Owing to his love for experiments and almost blowing up the building he was discharged—not careful enough for a pharmacist, he became the greatest chemist of his time.

The little book is well worth reading and the bibliographic references are very useful for further information.

The foregoing reviews have been prepared and communicated by

OTTO RAUBENHEIMER, PH.M.

Manual of Chemistry. By W. Simon, Ph.D., M.D., and Daniel Base, Ph.D. 12th Edition, 667 pages. Fifty-five illustrations, one spectrum plate, and six colored plates. Lea and Febiger, 1923.

Any book which, as this one does, attempts to cover in a single volume the fields of general chemistry, organic chemistry, and analytical

chemistry, both quantitative and qualitative is open to the criticism that the treatment of each division must be very brief. Every one interested will acknowledge that it is a very difficult matter to decide just what the scope of the work given to a student shall be and the decision rests upon the personal ideas of the teacher or author and the needs of his students. When does a little knowledge become a dangerous thing or is a little knowledge on a large number of subjects a valuable thing? The authors of this book seem to lean to the latter view and if this is correct, the book is an excellent exposition of the idea.

This idea is particularly evident in the treatment of the subject of colloidal solutions, only two and one half pages being devoted to the subject and this entirely to colloidal suspensions. The question of jels, the subjects of osmosis, dialysis, etc., are not mentioned in this connection. The discussion of gravimetric methods is painfully brief as is also that of gas analysis and water analysis. The same remarks might apply to the material presented on the subject of qualitative analysis and the question arises—Would it not be better to eliminate such very brief discussions of such special topics and devote the space to a more thorough discussion of the principles of general chemistry such as ionization, mass action, hydrogen ion concentration, indicators, hydrolysis, etc.? These remarks would apply particularly to the inclusion of such things as the lists of apparatus and reagents which are found on pages 353–357 which more properly belong in laboratory manuals and also to the reproduction of tables of neutralization equivalents on pages 397–407 which might better be sought for in books of reference such as special works on volumetric analysis or the U. S. P.

Aside from the criticisms made above, the treatment of the various topics is logical and errors of fact do not often appear to the casual observer. As a basis of study and under the guidance of competent instructors to direct the student and possibly in medical schools conducted along the lines prevailing some years ago such a book will no doubt be found very useful. It certainly presents in a concise manner much information which is of great value to the student of medicine or pharmacy and which is not found in most of the regular texts supplied to such students. The book as a whole makes a fine-appearing volume. The binding, the printing, the general arrangement of chapter and paragraph headings is very excellent and no typographical errors of any kind were discovered.

A. H. CLARK.

Hospital Corps Handbook, United States Navy, 1923. Published by the Bureau of Medicine and Surgery under the authority of the Secretary of the Navy.

The Handbook is intended for use at the Hospital Training Schools and covers, in abstract in some instances and in detail in others, a wide range of subjects. It serves as a text or guide in the preparation of the members of the hospital corps to perform their numerous duties.

A preliminary discussion of the subjects of anatomy and physiology is followed by a more thorough outline of the subjects of first aid and minor surgery, including bandaging and dental first aid.

The chapter on nursing treats of the general procedures with instruction in operating room and surgical technique, administration of anesthetics, physiotherapy and the preparation of food for the sick.

Preventive medicine, hygiene and sanitation receive considerable attention and instructs the corpsman in the care of the health of the personnel of the navy under all conditions while in the service.

The elementary theories of chemistry and pharmacy are discussed briefly followed by the subject of materia medica which includes the definition, manufacture, physical and therapeutical properties with doses and methods of administration of all drugs and preparations of the U. S. P.

Instruction is given in bacteriology and clinical diagnostic procedure; also embalming, X-ray and chemical warfare.

Duties on land and sea are definitely stated. The administration, organization, clerical duties etc., are fully explained.

In a handbook of about 700 pages a wide field of activity is explained and provided for the hospital corps in language that can be understood by the man of average education and mental alertness.

This edition was revised by Lieuts. W. J. C. Agnew and W. W. Behlow, Medical Corps, and Chief Pharmacist N. L. Saunders.

Copies of the handbook may be had from the Government Printing Office at $1.00 per copy.

C. A. DUNCAN.